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PSYCHOSOMATIC MEDICINE—VOL. II, NO. 2, APRIL, 1940

AUTONOMIC AND RESPIRATORY RESPONSES OF SCHIZOPHRENIC AND NORMAL SUBJECTS TO CHANGES OF INTRA-PULMONARY ATMOSPHERE*

H. FREEMAN, M.D. AND E. H. RODNICK, Ph.D.**

THE AUTONOMIC nervous system of the schizophrenic patient has frequently been suspected of being much more sluggish in its activity than that of the normal individual. On the psychiatric level emotional blunting or slowness in response to situations that would normally demand some affective reaction, lack of interest, and indifference to environmental stimulation have been taken as clinical evidence of a gross behavioral sort in support of this impression.

Confirmatory indirect experimental evidence of the lesser reactivity of the autonomic nervous system of the schizophrenic subject is not lacking, although few studies have offered unambiguous evidence on this point. Most of these investigations have dealt with the vascular and metabolic responses to drug (*9*) or endocrine (*10*) preparations. The importance of such findings, however, indicates the necessity for a more direct approach to the problem. For this approach we have selected the heat regulating mechanisms.

This phase of reactivity was chosen primarily because it is mediated through the integrated autonomic nervous system, with the major center presumably in the hypothalamus (*17*). As autonomic responses are elicited most readily when the organism is placed under stress, the stress selected was the suppression of heat loss from the lungs by the inspiration of hot, moist oxygen. When this source of heat loss is blocked, other mechanisms must be evoked to establish a new level of compensation, else the organism is thrown into a phase of thermal dysequilibrium. Such compensatory reactions, therefore, serve as a measure of the degree of reactivity of the autonomic nervous system.

SUBJECTS AND PROCEDURE

The subjects included 31 normal and 29 healthy male schizophrenic patients. The non-psychotic control subjects were obtained from applicants for attendant positions in the hospital and were paid for their services. Their ages varied from 20 to 35, the average being just under 30. The schizophrenic subjects were selected at random from the Research Service ward of the hospital, the diagnosis having been established both by the hospital and the research staff. Their age range was approximately the same as that of the normal subjects. The only criterion for selection was good cooperation and at least moderate contact with the environment. The patients had been hospitalized for periods ranging from 2 months to 19 years, the average being 5.4 years. They represented, therefore, in the main a chronic stage of the psychosis and included all the recognized subtypes of schizophrenia. These consisted of 2 paranoids, 8 catatonics, 10 hebephrenics, 1 simple, and 8 individuals of an indeterminate type.

* This investigation was aided by a grant from the Rockefeller Foundation.

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The procedure consisted essentially in having the subject breathe oxygen through a mask connected with a Jones basal metabolism apparatus. For the first 10 minutes the inspired oxygen was kept at a temperature of approximately 30° C. and a relative humidity of approximately 20 per cent. The humidity was maintained at a low level by passing the oxygen through a desiccating chamber containing either calcium chloride or calcium sulfate. This initial ten minutes served to acclimate the subjects to the situation as well as to permit the measurement of the basal levels of the responses. At the end of this control period the oxygen was shunted by means of a valve, without the knowledge of the subject, through a chamber containing hot water in which it was heated to a temperature above that of the body and almost saturated with water vapor.

All tests were done in a non-basal state. The subjects, without clothing, reclined for about 15 minutes in a room in which the temperature was maintained at 30° C. and the relative humidity at 20 per cent, an environment in which heat production and heat loss were balanced (*12*). Thus, both the skin and the lungs during the control period were exposed to the same atmospheric condition.

A variety of autonomic responses were recorded each minute throughout the experimental session. The blood pressure was measured by means of a mercury manometer. The heart rate was read directly on the meter of a specially designed cardiotachometer (*13*). The palmar D.C. electrical resistance of the skin was measured by means of non-polarizable electrodes and a Wheatstone bridge arrangement, as described by Darrow (*3*). In this technique the active circular electrode ($\frac{7}{8}$ of an inch in diameter) was placed on the right palm while the larger inactive rectangular electrode ($3\frac{1}{2}$ by $2\frac{1}{4}$ inches in size) was placed on the medial aspect of the upper arm. The relatively non-polarizing electrodes consisted of a physiological zinc sulfate-kaolin paste

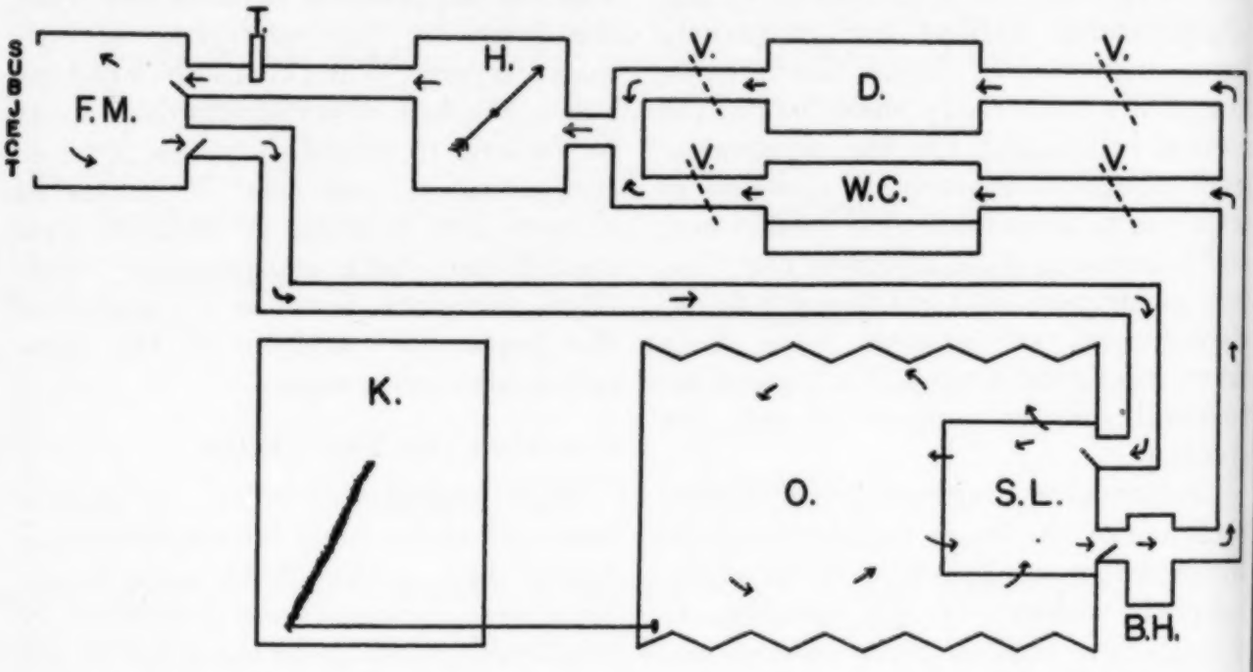

FIG. 1. Apparatus for varying temperature and humidity of inspired oxygen. The direction of oxygen flow is indicated by the arrows. K. = kymograph. O. = oxygen chamber of metabolism apparatus. S. L. = soda lime. B. H. = barium hydroxide solution. D. = drying chamber. W. C. = water chamber. H. = hygrometer. T. = thermometer. F. M. = face mask.

in metallic zinc cups. The active electrode was of "table" type, supported outside the area of electrical contact. The circuit suggested by Darrow has the special merit of keeping current comparatively constant at a low level of intensity. The rate and amplitude of respiration were obtained from the charts on the kymograph of the metabolism apparatus.

The experimental apparatus is shown schematically in *Fig. 1*. The entire system was kept air-tight. Various modifications of the original metabolism apparatus were necessitated by the exigencies of the experiment, such as placing an additional reservoir of oxygen in the input circuit and an extra cartridge of soda lime in the output system. The possibility of undue accumulation of carbon dioxide was checked by passing the oxygen over a 10 per cent solution of barium hydroxide. The relative humidity was measured by a hair hygrometer and the temperature by a small mercury thermometer placed just outside of the face mask in the tube carrying the inspired oxygen.

The discussion of the data will be confined to three readings in the control period, at the beginning (first minute), middle (fifth minute), and end (tenth minute) and to the level attained at the maximum temperature and humidity points.

In *Fig. 2* are shown the means of the temperature and relative humidity during the control period and the maximum elevation in the experimental period. In the control period the oxygen inspired by the normal subjects stayed at an average temperature of 29.7° C. For the patients the mean was 29.3° C. This variation is not considered to have any physiological significance. In the experimental period the temperature was increased to a maximum level for the normal subjects of 40.8° C. and for the patients to 41.0° C.[1]

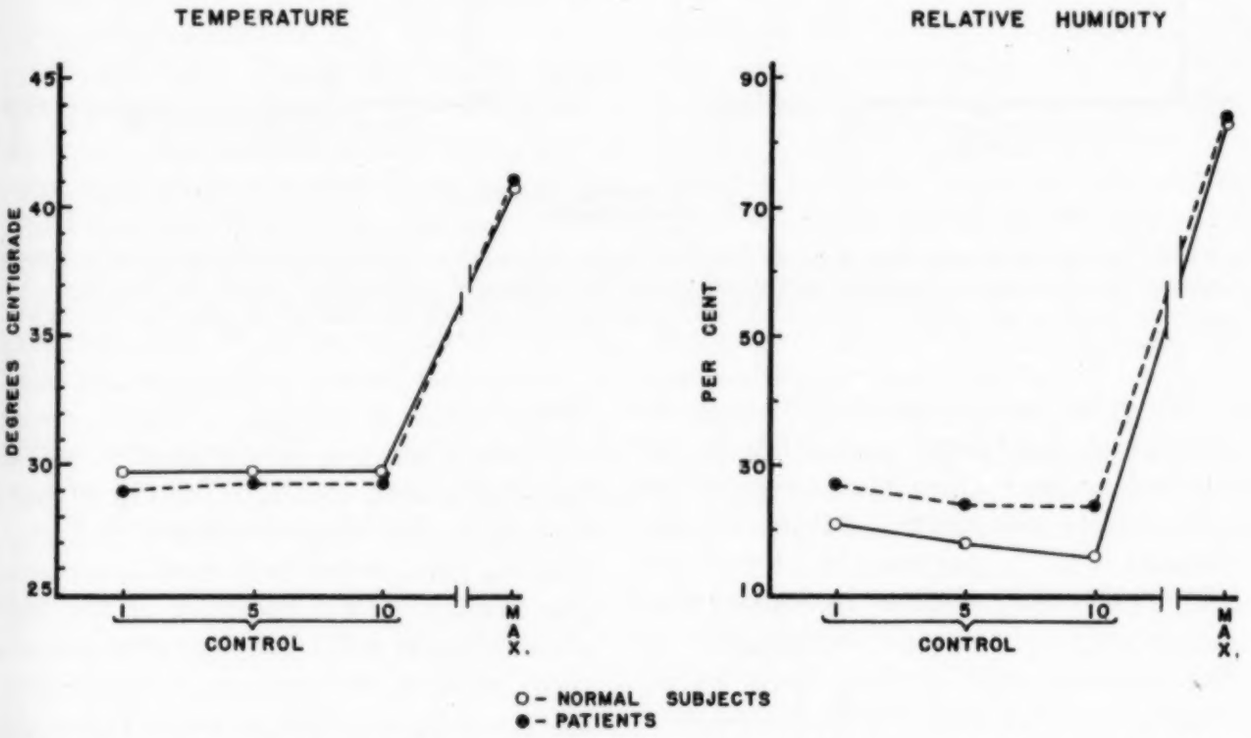

FIG. 2. Means of temperature and relative humidity of oxygen inspired by 31 normal subjects and 29 schizophrenic patients. The three control readings were taken at the first, fifth, and tenth minutes of the control period. The maximum reading represents the point at which the temperature and humidity were at a maximum.

[1] The rate and extent of the rise in temperature showed a fair amount of individual variation due both

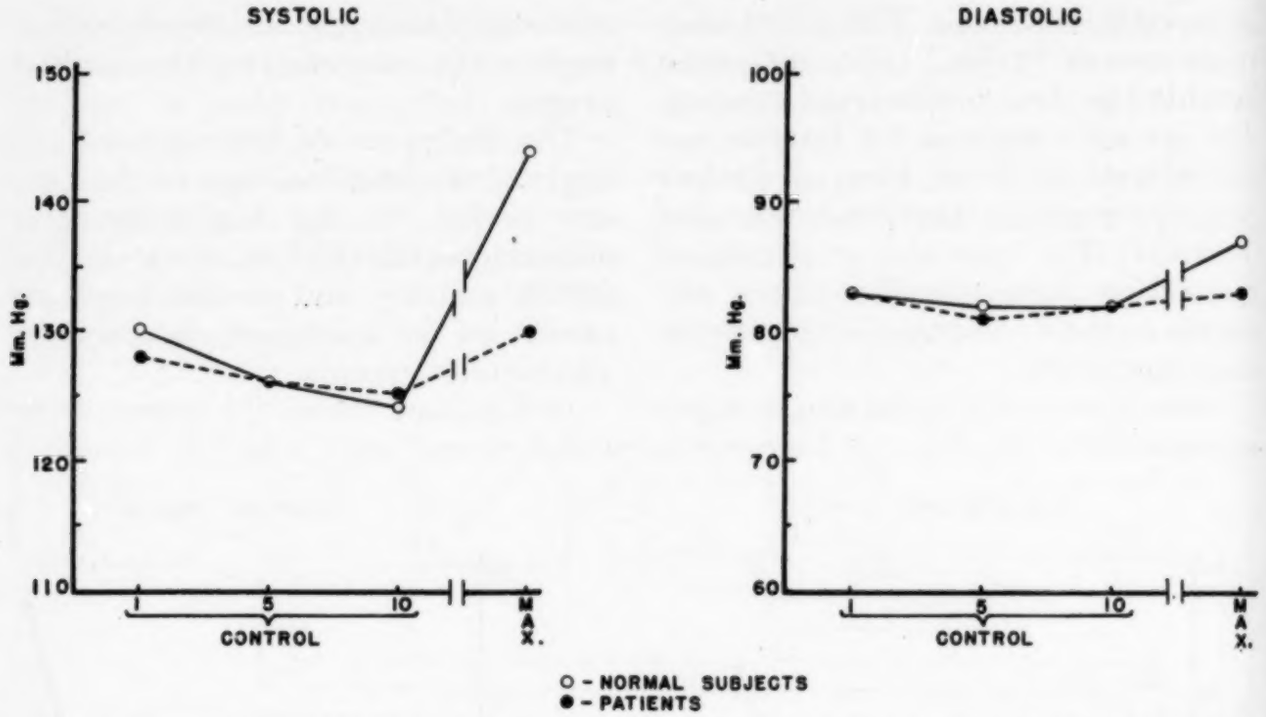

FIG. 3. Means of systolic and diastolic blood pressure values of 31 normal subjects and 29 schizophrenic patients. The three control readings were taken at the first, fifth, and tenth minutes of the control period. The maximum reading was taken at the point at which the temperature and humidity of the inspired oxygen were at a maximum.

The relative humidity of the inspired oxygen showed more variation in the control session than the temperature (*Fig. 2*). In the normal subjects it decreased from 20 per cent to 16 per cent whereas in the patients the values were consistently about 7 per cent higher. In the experimental period both values reached 83 per cent within three minutes after the oxygen passed through the water chamber.[2]

RESULTS

Blood Pressure. The response of the blood pressure to the blocking of heat loss from the lungs is shown in *Fig. 3*. During the control period of 10 minutes the systolic blood pressure of the normal subjects fell from 130 mm. to 124 mm. while in the patients a lesser drop from 128 to 125 mm. is seen. These differences were found to have no statistical significance. It is interesting to note that both the normal and the psychotic subjects start at practically the same blood pressure level, indicating that there is no difference in tension between the two groups of subjects due to apprehension in the experimental situation. When the temperature and humidity of the inspired oxygen are raised, however, the systolic blood pressure of the normal controls rose 20 mm. from the last control reading to a level of 144 mm. The patients, on the other hand, showed a rise of only 5 mm. to a level of 130 mm. This difference between control and schizophrenic groups was found to have a "t" (7), based on stand-

to difficulties inherent in the apparatus and to individual differences in the rate and amplitude of respiration. For the two groups of subjects, however, the rate of rise of temperature and the maximum height reached were quite similar. In the normal subjects it took 16.5 minutes to achieve this point and in the patients 15.5 minutes. Consequently we may conclude that a comparison between the two groups at this level of temperature is quite justified. The inspired oxygen was above body temperature rarely more than the last three minutes of the experiment.

[2] The actual level reached was undoubtedly one at which complete saturation occurred for water ran out of the hygrometer at the end of each experiment. The values in the control period are probably not entirely accurate and the difference between the normal and the psychotic subjects can be regarded as of little importance, especially in view of the fact that such a variation in humidity at this low level has little effect on temperature regulation.

ard deviations of 3.83. This represents a p (probability) of less than .01, and is highly significant

The diastolic pressures are at the same level in both groups (82 mm.) during the control session and show little change in the 10 minutes. In the experimental period, however, the normal subjects again display greater reactivity, the increase being 6 mm. as against 2 mm. for the patients. The difference between the groups has a "t" of only 1.28, however, and is not significant, the p being greater than .05.

Heart Rate. The graph of the mean heart rate response in *Fig. 4* shows a similar trend. The mean heart rate of the normal group rose from a level of 80 beats per minute at the end of the control period to a height of 106 beats at the end of the experiment—an increase of 26 beats per minute. During the corresponding period the mean increase for the patients is only 10 beats. The "t" of 4.15 for this difference of 16 beats per minute has a p of less than .01 and is hence highly significant. The lesser change in the patients cannot be attributed to their slightly lower initial level of 77 beats per minute, for no relationship was found between the initial level of heart rate and its maximum change. Furthermore, the difference of 3 beats between the two groups during the control period had no statistical significance.

Electrical Skin Resistance. The galvanic skin resistance showed the greatest variation of all the functions studied. Not only were there marked differences in the level of resistance among the various individuals but the direction of the trend under the experimental situation was less consistent. The normal subjects began at an average level of 9,000 ohms which was maintained at the fifth minute. After this the skin resistance fell to a level of 8,300. At the period of maximum temperature, the level decreased further to 6,700, a fall of 1,600 ohms from the last control reading. The patients started at a higher level of resistance (10,700 ohms) which increased during the con-

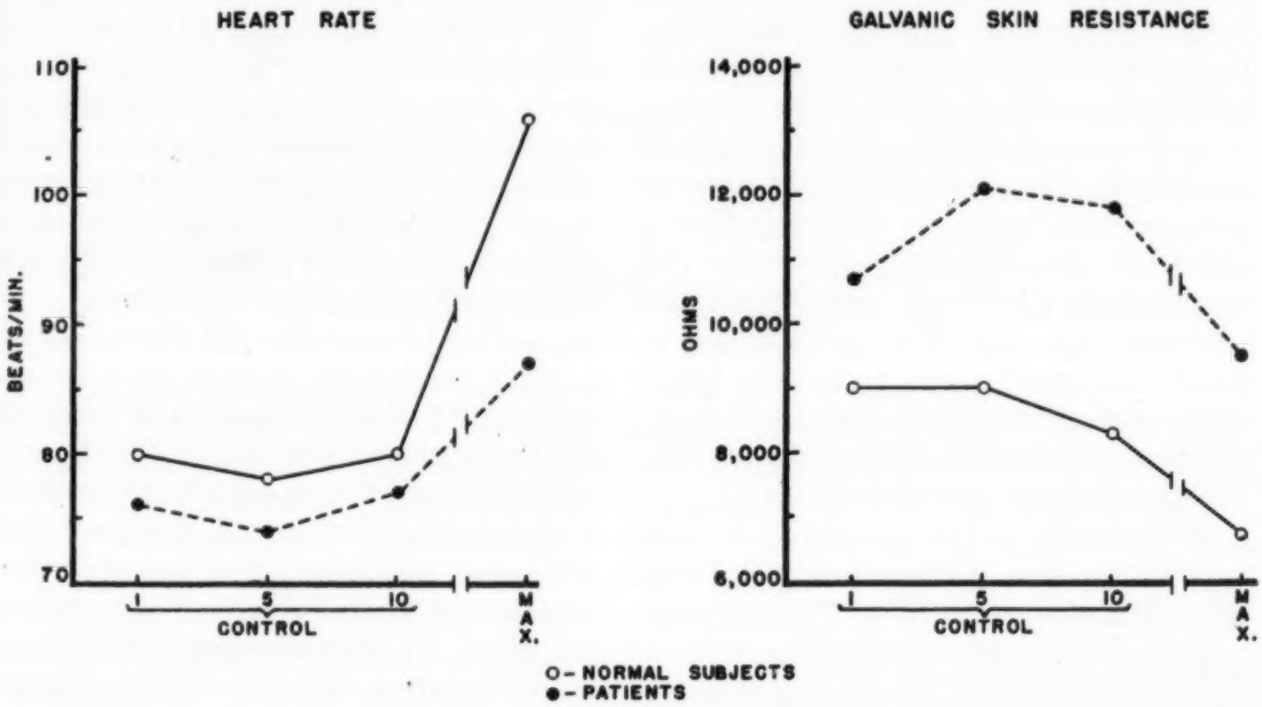

FIG. 4. Means of heart rate and galvanic skin resistance of 31 normal subjects and 29 schizophrenic patients. The three control readings were taken at the first, fifth, and tenth minutes of the control period. The maximum reading was taken at the point at which the temperature and humidity of the inspired oxygen were at a maximum.

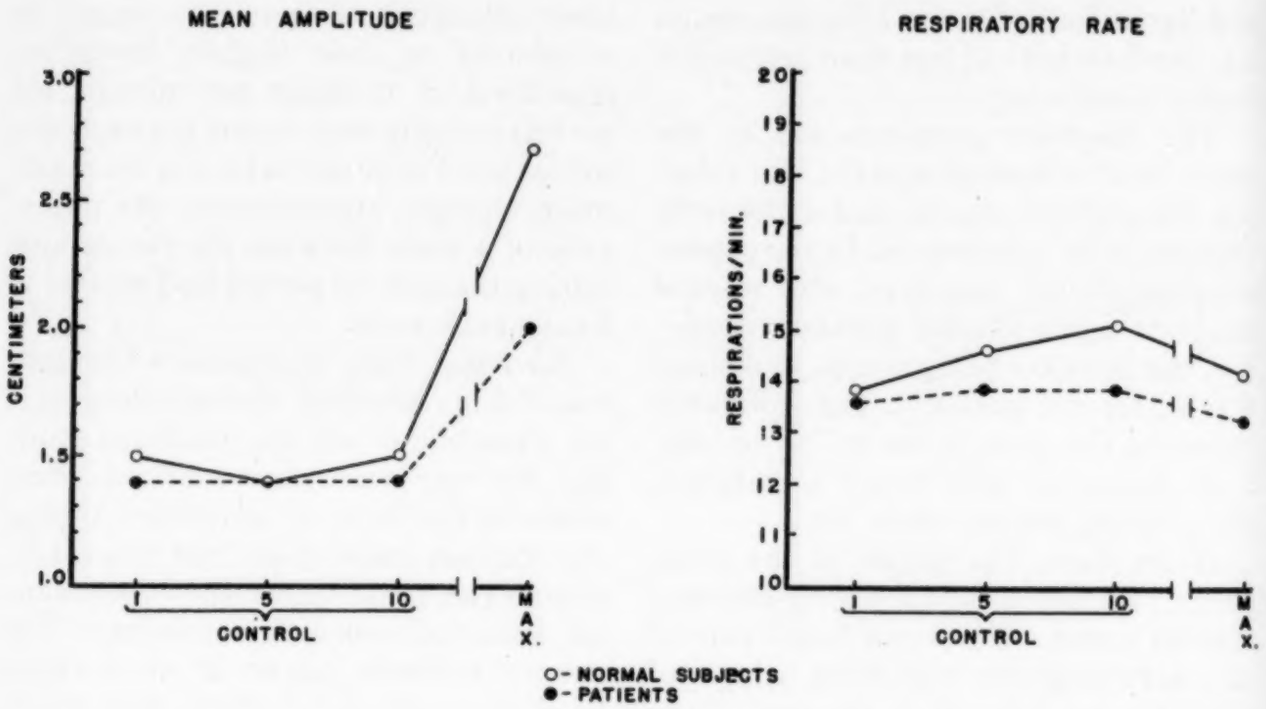

FIG. 5. Means of respiratory amplitude and rate in 27 normal subjects and 27 schizophrenic patients. The three control readings were taken at the first, fifth, and tenth minutes of the control period. The maximum reading was taken at the point at which the temperature and humidity of the inspired oxygen were at a maximum.

trol period to a level of 12,000 ohms. At 41° C. the resistance decreased 2,300 ohms. Although the change in resistance of the patients was absolutely greater than that of the normal subjects, the proportional drop from the last control reading was the same in both groups (19 per cent). The change in skin resistance from the last control reading to the point of maximum temperature and humidity was significant, although the difference between the schizophrenic patients and the normal controls was not. We are unable to draw any conclusions from this function except that the decrease in skin resistance indicated a definite autonomic reaction in both groups (*2*, *5*).[3]

Respiration. The respiratory response to the intra-pulmonary heat stimulation shown in *Fig. 5*[4] is particularly interesting, especially in view of the fact that the respiratory mechanism was the one primarily affected by the experimental situation. The reaction manifested was quite consistent. The respirations tended to become more regular and somewhat slower in many cases. The amplitude of the individual respirations increased very markedly. The ordinate units of this figure represent the average amplitude of the individual respirations for each minute. As may be seen, the mean amplitude of respiration of the normal subjects rose from 1.5 cm. to 2.7 cm., an increase of 80 per cent. The increase in the corresponding period for the patients was only from 1.4 cm. to 2.0 cm., a change of 43 per cent. This significant difference of 37 per cent between the two groups has a "t" of 3.35 and a p of less than .01. While these figures give no information as to the actual respiratory volume, they are indicative of the change produced by the experimental situation.

The respiratory rate (*Fig. 5*) on the

[3] Converting the resistance units from ohms to conductance units (micromhs), as Darrow (*4*) recommends, makes no difference in the trend.

[4] The respiratory data are based on the findings of 27 subjects in each group since in the case of 4 normal subjects and 2 patients the kymographic apparatus went out of order during the experiment. This had no effect upon the recording of the other responses.

whole showed only slight change. In both normal controls and patients the high temperature caused a slowing of the rate of one respiration per minute.

This increase in respiratory amplitude accompanied by a slight slowing in rate is of some importance in the interpretation of the probable stimulus for the response pattern obtained. The possibilities of carbon dioxide excess in the apparatus or anoxemia resulting from a deficiency of oxygen are eliminated by the fact that there was no increase in the frequency of respirations (*14*, *19*). Checks on the apparatus during the experiment supported this conclusion. The effect was not due to thoracic muscular exertion resulting from resistance of the basal metabolism apparatus since respiratory fatigue is indicated by shallow and rapid breathing (*11*). Furthermore, there seems to be little indication that the effect resulted from a marked apprehension of the experimental conditions. The various varieties of respiratory reactions to emotion that have been reported, such as irregularity and increase in rate, do not seem to fit the picture obtained in this experiment (*6*). A similar syndrome of hyperpnoea, slight slowing of the respiratory rate, and air hunger was found by Landis *et al.* in subjects exposed to heat (*15*). The conclusion is thus reached that the particular physiological pattern here obtained is at least largely the result of the blocking of heat loss through the respiratory mechanisms. Additional evidence for this interpretation was found in an analysis of the individual cases. In 12 subjects there was at the close of the experiment a slight fall (1° C.) in the temperature of the inspired oxygen from the maximum. In 10 of these cases there was a corresponding decrease in the blood pressure, heart rate, and respiratory amplitude.

At the close of each session, each normal control subject was asked to give an introspective report of his reaction to the experimental procedure. The reports indicate that the most usual sensation was that the air became warm, moist, and somewhat stuffy, as on a humid summer day. In the case of 10 of the subjects there was a report of an increase in difficulty in breathing, although this did not occur until the very end of the experiment, when the temperature and humidity were close to the maximum. Three of the subjects indicated a sensation of dizziness at the time that the maximum temperature was reached. Eight subjects reported that they did not mind the stimulus in any way. Although these reports tend to indicate some discomfort toward the close of the experiment, when the temperature and humidity made the inspired oxygen very stuffy, yet it does not seem likely that apprehension toward the experimental situation could have been the basic variable involved in accounting for the marked sympathetic reaction obtained. In the first place, heart rate, blood pressure, and respiration began to show an effect considerably before the temperature had reached a maximum level, and definitely before the subjects indicated discomfort. Then again, the failure to find a reaction during the control period, or any difference in basal levels between schizophrenics and normals at that time, would seem to indicate that there was no difference in apprehension between the two groups of subjects. Furthermore, of the 22 subjects who registered some complaint of discomfort toward the close of the session, only 8 showed a systolic blood pressure rise that was greater than the mean of the entire group; 11 showed an increase in heart rate above the mean of the group; and only 10 showed an increase in total amplitude of respiration above the mean. A plotting of the distribution of the subjects who complained of the experimental procedure, or reported any

apprehension, showed that they were distributed randomly throughout the whole group of subjects; they were not necessarily the greater reactors.[5] It seems definite, therefore, that the rise in heart rate, blood pressure, and respiration amplitude could not be a result of mere apprehension alone to the experimental situation. Differences in apprehension and conscious awareness to the experimental situation cannot be the most important variable in accounting for the differences obtained between the normal and schizophrenic groups.

Psychiatric Rating vs. Autonomic Reactivity. In order to determine whether any relationship exists between degree of physiological reactivity and psychiatric status, each patient was ranked independently by a ward psychiatrist and the experimenters according to cooperation and contact with the environment. This rank order of the patients was then correlated in a scatter diagram with the increase in both heart rate and systolic blood pressure, as these were apparently the most reactive of the indicators used. There was no indication of any relationship between the degree of reactivity and psychiatric status as determined by our criteria. A similar lack of relationship existed for clinical subtypes and age of hospitalization. It is apparent, therefore, that degree of autonomic reactivity as measured in this experiment is independent of the clinical status of the patient once a chronic stage of the disorder has been reached. On the basis of these data, however, it is impossible to predict what relationships might be found in the more acute stage of the psychosis.

Discussion

Whether the factors underlying the present reaction be purely subcortical mechanisms, or an integration of the higher representation areas of autonomic functions such as may be involved on a cortical level, or whether they are tinged with the result of conscious responses as well, there is no question but that the schizophrenics respond less adequately than the normal subjects. It is important in this connection to point out that experiments on homeostasis do not indicate such striking differences between schizophrenics and normals under basal conditions (*8*, *9*). The differences appear only when a strong stress is placed upon the mechanism, sufficient to cause a marked autonomic reaction.

Since the experiment was designed to block off heat loss from the lungs, it might be expected, as a compensatory phenomenon, that the body temperature would rise. Experiences with diathermy, however, have shown that a minimum of 15 minutes is required before any rise in body temperature can occur, despite all precautions designed to prevent heat loss from the skin(*16*). Since in our situation all heat loss from the lungs is inhibited, a similarity in the trend of body temperature might be expected. In view of the fact, however, that the actual inhibition of heat loss from the lungs occurred for only the last few minutes of the experimental situation, not much change in body temperature could be expected, and hence this function was not measured. For this reason we utilized only rapid indicators of autonomic stress.

The "sluggishness" of adaptive functions observed in this experiment has been found to be a characteristic feature of schizophrenics in the chronic stage of the psychosis, not merely in the domain of heat regulation, but in other aspects of physiological and psychological function as well (*1*, *18*).

What relationship this abnormality of the homeostatic mechanisms has to the psychiatric disorder is as yet not

[5] The unreliability of introspective reports from schizophrenic subjects precludes a comparison with those of the normal subjects.

clear. One can only say that a deficiency in adaptive responsiveness of the autonomic reaction system might very well affect the ability of the schizophrenic patient to adjust in an efficient manner to the exigencies of the environment in which he is placed. Even when the stress of the environment is sufficiently strong to arouse an integrated autonomic reaction in normals, the schizophrenic is unable to respond adequately. The fact that the autonomic nervous system of the schizophrenic cannot react efficiently to strong stimulation might well militate against the merely sympathetic-stimulating effects of present therapeutic endeavors and might offer some explanation for the failure of such therapies in patients in the chronic stage of the psychosis.

Summary

The cardiovascular and respiratory reactions of 31 normal subjects and 29 schizophrenic patients have been studied in response to a thermal stress placed upon the organism by having them inspire oxygen in which the temperature was raised to 41° C. and the humidity to the saturation point. As indicators, the blood pressure, heart rate, galvanic skin resistance, and respiratory rate and amplitude were used.

Although the basal levels of the various indicators during a control period were quite comparable for both the normal controls and the patients, the control subjects gave significantly larger autonomic and respiratory responses to the increase in temperature and humidity of the inspired oxygen. The findings lend experimental support to indications that the schizophrenic patient is sluggish in adaptive reactivity of the autonomic nervous system.

Bibliography

1. Angyal, A., Freeman, H., and Hoskins, R. G.: Physiological aspects of schizophrenic withdrawal, Arch. Neurol. Psychiat. (in publication).
2. Darling, R. and Darrow, C. W.: Determining activity of the autonomic nervous system from measurements of autonomic change, J. Psychol., *5:* 85–89, 1938.
3. Darrow, C. W.: Uniform current for continuous standard unit resistance records, J. Gen. Psychol., *6:* 471–478, 1932.
4. Darrow, C. W.: The equation of the galvanic skin reflex curve: I. The dynamics of reaction in relation to excitation background, J. Gen. Psychol., *17:* 285–309, 1937.
5. Darrow, C. W.: Neural mechanisms controlling palmar galvanic skin reflex and palmar sweating; consideration of available literature, Arch. Neurol. Psychiat., *37:* 641–663, 1937.
6. Finesinger, J. E.: Effect of pleasant and unpleasant ideas on respiration in psychoneurotic patients, Arch. Neurol. Psychiat., *42:* 425–490, 1939.
7. Fisher, R. A.: Statistical Methods for Research Workers (4th ed.). Oliver and Boyd, London, 1932. pp. 307.
8. Freeman, H.: Skin and body temperatures of schizophrenic and normal subjects under varying environmental conditions, Arch. Neurol. Psychiat., *42:* 724–734, 1939.
9. Freeman, H.: Heat regulatory mechanisms in normal and schizophrenic subjects under basal conditions and after the administration of dinitrophenol, Arch. Neurol. Psychiat., *43:* 456–462, 1940.
10. Freeman, H. and Carmichael, H. T.: A pharmacodynamic investigation of the autonomic nervous system in schizophrenia. I. Effect of intravenous injections of epinephrine on the blood pressure and pulse rate, Arch. Neurol. Psychiat., *33:* 342–352, 1935.
11. Haldane, J. S.: Respiration. Yale University Press, New Haven, 1922, p. 54.
12. Hardy, J. D. and DuBois, E. F.: Basal metabolism, radiation, convection, and vaporization at temperatures of 22° to 35° C., J. Nutrit. *15:* 477–497, 1938.
13. Horton, G. W.: An electronic cardiotachometer, Electronics, *11:* 14, 1938.
14. Hunt, R. G.: Studies on anaesthesia. II. Certain effects of low oxygen concentrations, J. Lab. clin. Med., *6:* 881–889, 1931.
15. Landis, E. M., Long, W. L., Dunn, J. W., Jackson, C., and Meyer, U.: Effects of hot baths on respiration, blood, and urine, Amer. J. Physiol., *76:* 35–48, 1926.
16. Neymann C. A., and Osborne, S. L.: The treatment of dementia paralytica with hyperpyrexia produced by diathermy, J. Amer. med. Ass., *96:* 7–13, 1931.
17. Ranson, S. W.: The hypothalamus as a thermostat regulating body temperature, Psychosom. Med. *1:* 486–495, 1939.
18. Rodnick, E. H., and Shakow, D.: Set in the schizophrenic as measured by a composite reaction time index, Amer. J. Psychiat. (in press).
19. Schneider, E. C., and Truesdell, D.: The effects on the circulation and respiration of an increase in the carbon dioxide content of the blood in man, Amer. J. Physiol., *63:* 155–175, 1922.

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RESPIRATION AND PERSONALITY—A PRELIMINARY REPORT: PART I. DESCRIPTION OF THE CURVES*

FRANZ ALEXANDER, M.D. AND LEON J. SAUL, M.D.**

INTRODUCTION[1]

THIS STUDY of the influence of emotions —or more generally, of psychic factors —upon respiration, is a part of an investigation that has been conducted at the Chicago Institute for Psychoanalysis on the relationships between body functions and emotional tendencies (*14*).

A study of emotional influences on respiration was undertaken because it seemed logical and promising. With but few exceptions, scientific progress comes not from a blind search for correlations or from isolated descriptions of phenomena, but from planned research based upon logical expectation. We considered a correlation between respiration and emotion to be probable on the basis of the evidence from both common knowledge and scientific observation. Examples of everyday phenomena which illustrate this correlation are the panting in fear, rage, and sexual excitement, the sighs of relief or despair, and the respiratory involvement in weeping and laughing. The posture of a person's chest is commonly considered to be an index of his mental state. The scientific literature on respiration and emotion is extensive, and the reader is referred to the reviews by Dunbar (*4*) and by Wittkower (*25*). Römer (*20*) has claimed that he has been able to reach correct conclusions regarding an individual's personality, from studying his spirograms. There are numerous references to the unconscious significance of respiration in the psychoanalytic literature. Freud (*8*) pointed out emotional factors in Dora's "nervous asthma." He described the Wolf-man's use of inhalation to take in the Holy Spirit, and exhalation to be rid of evil spirits as well as to prevent identification with cripples (*9*). Jones (*15*) refers to the mythological concepts of impregnation through breath, and Roheim (*19*) collected ethnological material showing the magic concepts of primitives connected with the respiratory act. Fenichel (*6*) in a neurotic case observed the unconscious symbolic significance of the inspiratory act as a means of incorporating objects. He also referred to anal-sadistic fantasies of attacking (poisoning) by breath. Oberndorf (*17*) described a case in which sniffling was an equivalent of sucking. The relation of emotional tensions to respiratory disturbances, especially to asthma, has been observed by a large number of clinicians and psychoanalysts, particularly Weiss (*23*) and F. Deutsch (*3*). A cooperative study by the group of the Chicago Institute for Psychoanalysis will soon appear (*7*).

The immediate considerations which led to undertaking the present inves-

* Read at the American Psychiatric Association Meeting, St. Louis, Missouri, May 7, 1936.

** From the Institute for Psychoanalysis, Chicago.

[1] This section of the work is submitted before that dealing with psychological correlations because it takes months and years to accumulate sufficient psychological data adequately to test our findings (since an analyst undertakes so few new analyses each year) while, in the meantime, others may find useful the method of analysis of the curves herein described.

tigation resulted from the study of emotional factors in gastrointestinal disturbances (*2*). The present work is a direct outgrowth of that study. It offered the advantage over the gastrointestinal work, of the possibility of quantitatively recording the physiological function which is being correlated. This advantage is shared by studies of the influence of emotional factors upon blood pressure.

In the study of gastrointestinal disturbances, it was found that psychological tendencies are likely to influence those physiological functions which have the same vector quality[2] (*1*). Psychological tendencies, with an eliminating vector, influence physiological functions of eliminating, incorporating psychological tendencies influence incorporating physiological activities, and retentive wishes influence retentive activities. We now asked ourselves whether these same elementary psychological vector tendencies that could be brought into causal relationship with certain gastrointestinal disturbances, might not also have an influence upon the respiratory act. For in the respiratory function also, all three of these vectors may find expression: incorporating tendencies in the inspiratory act, eliminating tendencies in the expiratory act, and retentive in breath holding. It was obvious that the only way of testing out this working hypothesis was to find a reliable method by which the relative strength of psychological factors could be established in different personalities, and also to find a quantitative method for studying the respiratory act.

[2] The word *vector* was introduced by Alexander to express the direction in relation to the individual of impulses which are seen both psychologically and physiologically. These he groups as follows: 1) centripetal, intaking, or incorporative, 2) retentive, and 3) centrifugal or eliminative. Thus the investigator confronted by a mass of psychological and physiological data is able to distinguish certain similarities between the two, namely, the direction of the impulses.

Technique

To obtain the respiratory curves or spirograms we employ the standard technique used in making basal metabolic rate determinations. Our machine is the usual metabolism apparatus with the capacity increased to 6500 cc. so that the patient's vital capacity can be recorded at the end of the test. This makes it possible to calculate the absolute respiratory or chest level (*Fig. 1*). This concept of the "chest level" or, better, "respiratory level" is illustrated in *Fig. 1* and will be described later. The tests are given in the usual fashion with the patient as relaxed as possible. Two tests are given in one morning and repeated the following day. This procedure is repeated every one to three months. Since we found that the shape of the respiratory curves of a given individual was usually not markedly different under non-basal conditions, the later curves were sometimes done after a half hour's rest, but not on an entirely empty stomach. This technique for obtaining respiratory curves has been criticized by certain authors, particularly by Golla (*11*) who employs a much more refined technique. We have found that the curves obtained from approximately three-quarters of our subjects were relatively constant whether taken with mouthpiece or face mask, and usually even whether they were obtained under basal conditions or not. If the mouthpiece and mouth breathing influence the individual's respiration, the influence is constant and characteristic of that individual. That is, we record the different shapes of spirograms yielded by individuals in a constant standard experimental situation. All tests are done by the same technician in standard fashion. We have, therefore, found no reason to change the technique, which has the advantage of simplicity and standardization and makes it possible for us to compare our curves

with those obtained in various laboratories in the course of ordinary basal metabolic determinations. We also obtain curves with the kymograph running at three inches per minute in addition to those obtained at the usual rate of one inch per minute. Standing up may alter the curves. All of ours were obtained with the subject supine, according to the standard metabolism technique.

tention to certain characteristics: The rate and depth of respiration are of course commonly known and require no explanation.

The respiratory level (or chest level) has been mentioned by a few authors, *e.g.* Greene and Coggeshall (*12*), but has been little utilized in work in the respiratory field. The expiratory-respiratory level is that percentage of the total vital capacity which is composed of

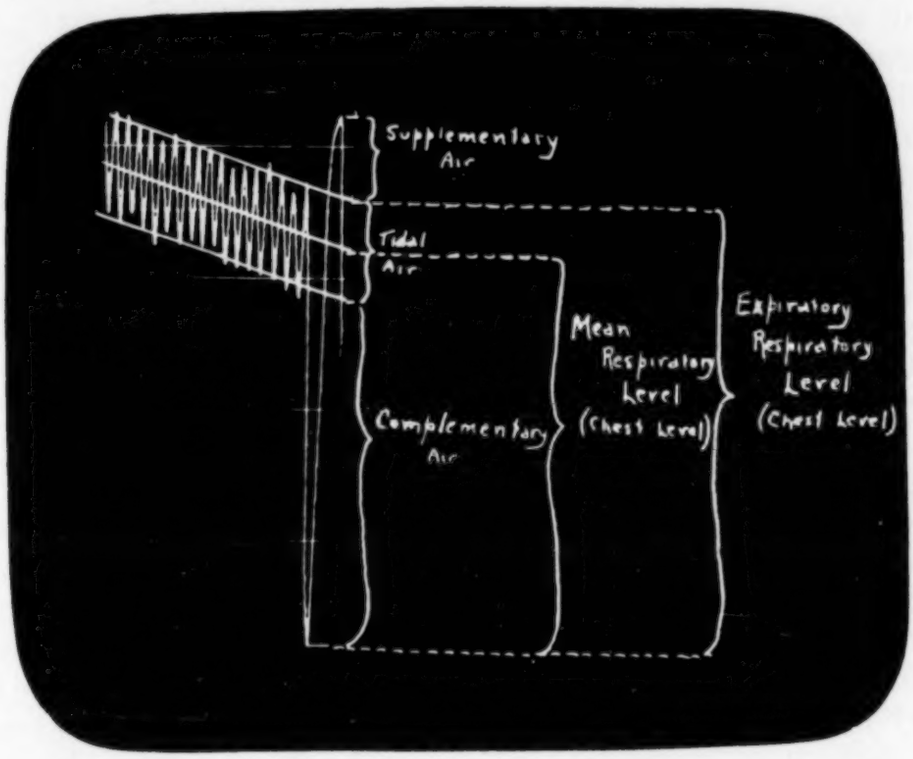

FIG. 1

In comparing spirograms with those obtained by other observers using the same method, the most important single point of standardization seems to be the amount of resistance of the apparatus to free respiration. As this resistance is increased, the spirogram shows widening of the tidal air and disappearance of important details of form, for example, the respiratory pause (rounding of the expiratory tips).

DESCRIPTION OF THE CURVES

In describing the spirograms or respiratory curves, we have directed our at-

tidal air plus the complementary air. It may be thought of schematically as the level of the diaphragm during normal respiration. The mean respiratory level is this percentage measured from the middle of normal tidal respiration to total inspiration, in relation to the total vital capacity. Variations in respiratory level are seen in *Fig. 2*.

The rounding of the expiratory tips of the curves, shown in this figure, has been described in physiological text books as a normal respiratory pause. However, it occurred to an appreciable degree in only 40 per cent of our 75

male cases, and 30 per cent of our 76 female cases. Actually it is of course not really a pause but a slower reversal of direction. It is probably due to an increase of the expiratory stimulus relative to the inspiratory, so that the change from expiration to inspiration is prolonged.

In addition to these "chronic" phenomena of depth, rate, level of respiration, and rounded expiratory tips, certain characteristics so-called "spasmodic" phenomena also appear in the curves. These are slight hesitations in inspiration and expiration which we call respectively inspiratory and expiratory "hooks" and which are illustrated in *Fig. 3*. These "hooks" can be produced by swallowing, but they also appear at times when the subject does not swallow and is not aware of any hesitation in his breathing. Another feature which has been described in the literature in connection with sighing respiration, *e.g.* by Trumper (*22*) and others, consists in rather sudden, deep inspiratory "spikes" which may occur not as part of a sighing type of respiration but only occasionally and as a characteristic feature of certain curves. Sudden breath-holding is also seen on the curves in the form of flat or squared inspiratory or expiratory tips and may also occur at any place during respiration. These are also seen in *Fig. 3*. These phenomena are also encountered in laboratory animals. See for example illustrations in papers of Nicholson (*16*) and Smith (*21*).

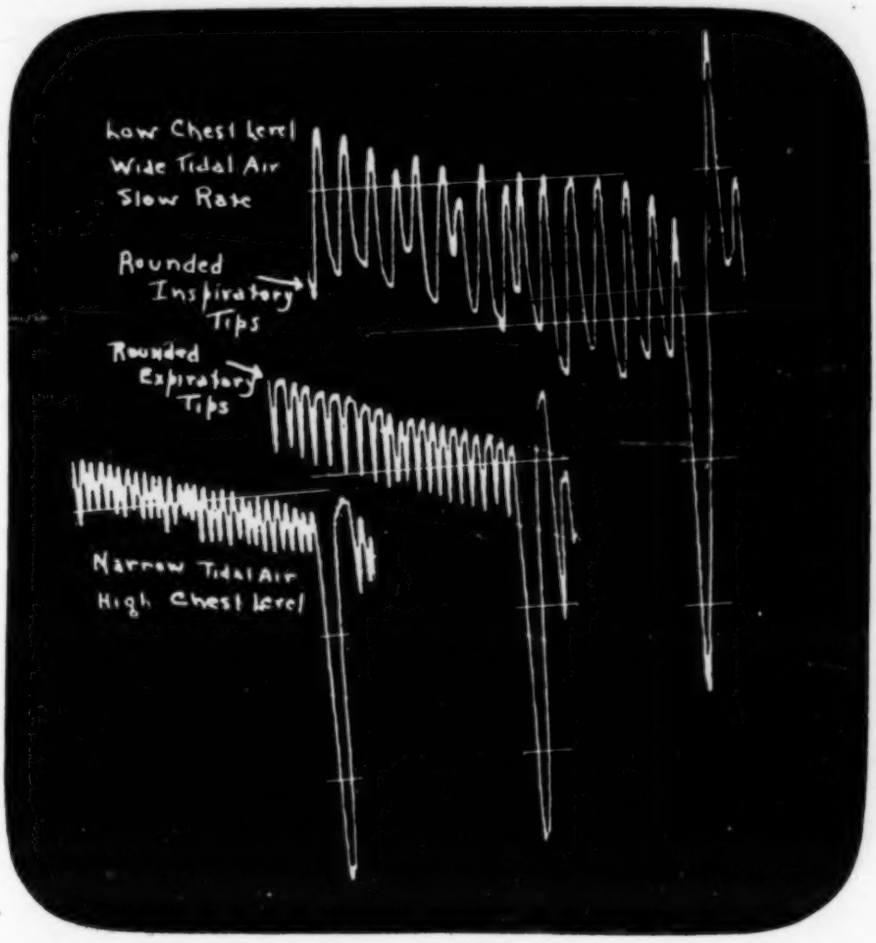

FIG. 2

We estimate the degree of rounding of expiratory tips as 0, 1 plus, 2 plus, and 3 plus. In doing this we take cog-

nizance of the prominence of rounding, *i.e.* whether the tips are markedly or only slightly rounded, and also of the percentage of the tips which show rounding at all (it is rare to find a curve in which every tip is rounded). The 0 is self-explanatory. We call 1 plus, those curves in which rounding is present but minimal, 3 plus, those in which it is excessive in reference to the average, and 2 plus, all the intermediates. The middle and lower curves of *Fig. 2* show 3 plus and 0 expiratory rounding respectively. We have used this very rough method of expressing the amount of rounding as a first approximation. With the kymograph at three inches per minute instead of at the usual rate of one inch per minute, spirograms are obtained which are more easily studied for certain features, particularly for rounded tips. *Fig. 4* shows two samples of different degrees of rounding. This may be represented mathematically by taking the ratio Inspiration/Expiration. Another method for more quantitative description of the rounding is by making a scale, as described by Finesinger (*5*).

In addition to the spirograms of the Institute patients, curves were obtained from 16 patients with peptic ulcer referred by Dr. J. Meyer from the Michael Reese Out Patient Clinic. Fifty-two of the metabolism curves done at Billings Hospital were also studied. Dr. Read kindly gave us the opportunity to take curves on 46 paranoid and hebephrenic patients at the Elgin State Hospital. The total number of individuals whose curves we have studied is 265.

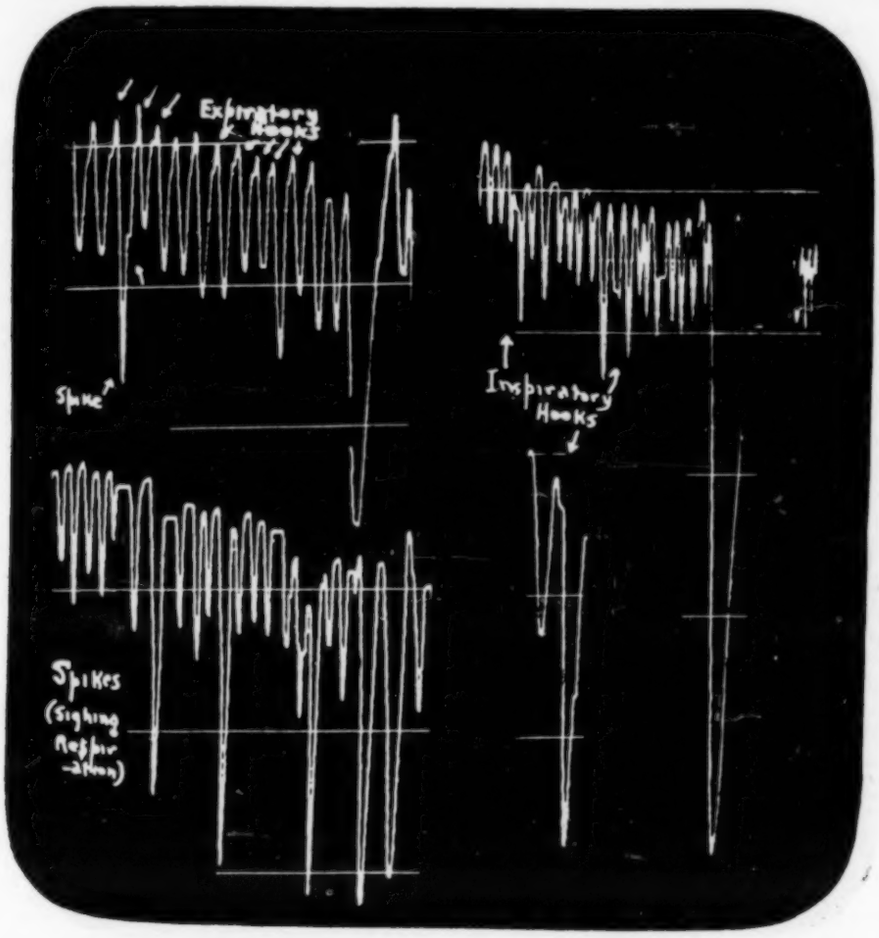

FIG. 3

Average Figures[3]

Average figures for the original Institute groups of 30 men and 36 women patients are:

Males: Rate: 11.6, TA: 522.0 cc., TA per cent: 15.7, ERL per cent: 82.8, VC: 3593.1 cc. Rounding: 0—43.3 per cent, 1 plus—33.3 per cent, 2 plus—10.0 per cent, 3 plus—13.4 per cent. Expiratory Hooks: 0 and 1—76.7 per cent, 2 and over—23.3 per cent. Spikes: 0 and 1—93.3 per cent, 2 and over—6.7 per cent.

Females: Rate: 13.5, TA: 417 cc., TA per cent: 18.0, ERL per cent: 85.6, VC: 2453.4 cc. Rounding: 0—50.0 per cent, 1 plus—27.8 per cent, 2 plus—16.7 per cent, 3 plus—5.5 per cent. Expiratory Hooks: 0 and 1—69.5 per cent, 2 and over—30.5 per cent. Spikes: 0 and 1—86.1 per cent, 2 and over—13.9 per cent.

[3] A brief description of the technique, curves, and average findings has been published in: Proceedings of the American Physiological Society, Memphis, Tenn., 1937.

Individuality and Constancy of the Curves

Comparing a series of curves of one individual with a series obtained from another individual, two facts are immediately apparent. The first is that the curve is rather typical of the individual, like his handwriting. In other words, there are characteristic differences between the respiratory patterns of different individuals, just as their handwritings are different. In our series no two individuals have yielded identical respiratory patterns. The second fact is the constancy of any individual's respiratory tracing. In about three-quarters of the Institute cases, despite variations in details, the major features remained characteristic of the individual over long periods (at least three years, the duration of our studies). Those which showed considerable variability still retained recognizable individuality. Experiment showed imita-

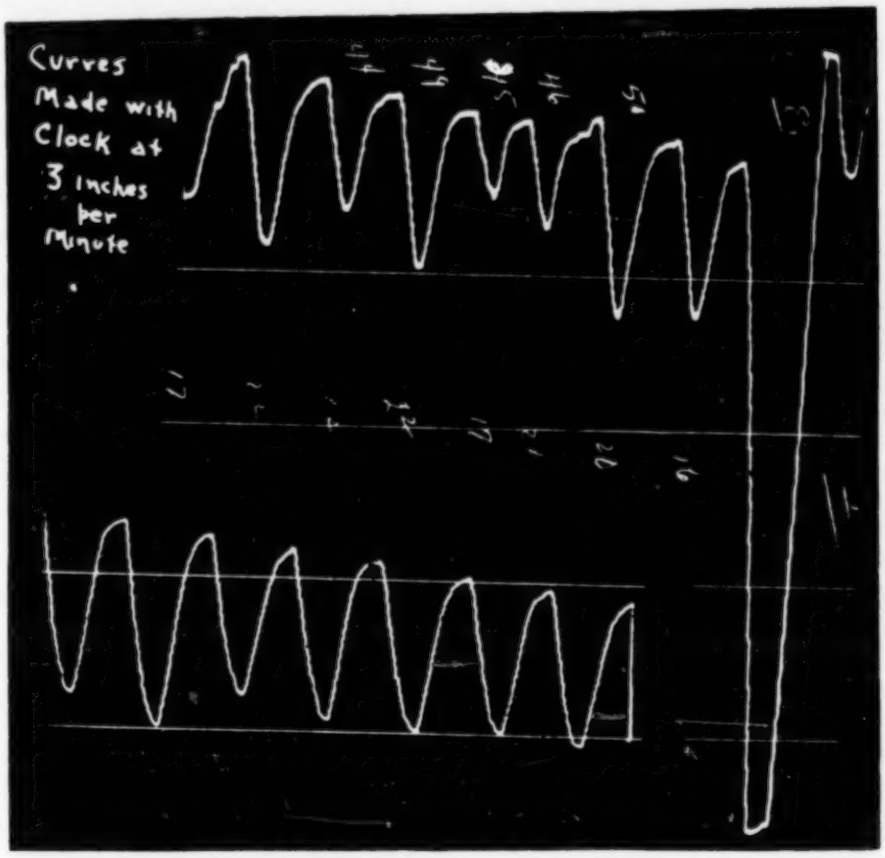

Fig. 4

tion of another's spirogram to be extremely difficult. These observations received striking corroboration in an article by Gesell (*10*) on the individuality of respiration in dogs. We found certain patients who regularly squeeze out all the supplementary air at each expiration, and who, when their vital capacity is taken, are unable to squeeze out more air from their lungs by special effort than they do during their regular breathing. That such different types exist even among animals was demonstrated by Gesell who by recording action currents from the respiratory muscles found that among 27 dogs, two did not use any expiratory muscles, and the remaining 25 showed varying degrees of active expiration. Details may vary though the general character of the curves remains constant.

Anthropometric Correlations

The question immediately arises: Is not this degree of individuality and constancy of the respiratory curve determined by physical structure, by the individual's body build or chest shape? To answer this question we made chest measurements on fifty patients in addition to the usual records of height, weight, age, temperature, pulse and blood pressure.

The following measurements were made using a thoracimeter with a spirit level: the circumference (axillary), antero-posterior axis, (from midline of sternum, level of third rib margin, in anterior axillary line), and transverse axis (axillary, on ribs). These were made with the chest relaxed, at full inspiration, and at full expiration. Ratios were then calculated of:

$$\frac{\text{transverse}}{\text{longitudinal}} \quad \frac{\text{antero-posterior}}{\text{longitudinal}}, \text{ and}$$

$$\frac{\text{transverse} \times \text{antero-posterior}}{\text{longitudinal}}.$$

The product of the three axes was used as a very rough index of chest volume.

We then sought correlations between these measurements and combinations of these measurements and characteristics of the respiratory curves. But by the use of graphs, and then with the expert statistical treatment of the data by Mr. Harrison and Mr. Jaffe, we were unable to establish any significant correlations, with but one possible exception. Our negative findings, of course, do not prove that such correlations with the physique do not exist, but if they do we have not as yet been able to establish them. The one correlation which occurred with sufficient frequency to be of possible significance was the rather high incidence of rounding of expiratory tips in women with small chests of relatively short length, and with a low degree of longitudinal expansion.

The absence of correlation between style of breathing and physique is probably because the respiratory movements are controlled by a complicated and delicate balance between opposing innervations, inspiratory and expiratory (*18*). This sensitively balanced nervous control could be expected to determine the pattern far more than the body structure.

Where certain types of thoracic pathology exist we would expect to find some reflection in the spirogram. For example a patient with barrel chest showed a very high respiratory level, due probably to the inflexibility of his chest interfering with further expiration.

Respiratory Efficiency

In the Institute group the *respiratory efficiencies* of different individuals varied from 8 to 32 liters of oxygen breathed for one liter absorbed.

Correlations with Symptoms

Relative to the averages of the entire group, 21 asthmatics (8 men, 13 women) showed slightly faster rates, and less rounding, hooks and spikes. The fewer rounded tips in the asthmatic patients may perhaps result partly or entirely from narrowness of the bronchial tubes since it is well known (*13*) that rather shallow, slow respiration with rounded tips changes when the subject breathes through a narrow tube, to deeper, more rapid respiration with gradual disappearance of the rounded tips. Thus rounding may be masked by other factors.

Spirograms of Psychotics

Through the kind cooperation of Dr. Read we obtained curves from 46 psychotic patients at the Elgin State Hospital. We are in no position to draw any conclusions from these and wish only to draw attention to the shallow breathing, to the low respiratory level and absence of rounded tips in most of the hebephrenic spirograms. (This is consistent, according to our interpretation of the curves, to be developed later, with their acceptance of dependence and passivity, *i.e.* tendencies of intaking vector). Their rapid and shallow breathing has been noted by various workers (*24*). Sudden breath-holding ("squares") of over fifteen seconds has appeared only in the records of psychotics or very severe neurotics, as well of course as in such cases as respiratory tics.

Psychological Correlations

Our evidence at present is suggestive of a correlation between intaking and eliminating tendencies which are observable in the mental life, and characteristics of the spirograms, particularly between a preponderance of eliminating over intaking tendencies and rounding of the expiratory tips. We have also tried "factoring" the records for all details associated with inspiration as opposed to those associated with expiration. For example, inspiratory spikes, inspiratory hooks, wide tidal air, rounded tips at inspiration, square tips or breath-holding at inspiration and low chest level, are apparently all connected with increased inspiratory tendencies in respiration; while shallow respiration, hooks interrupting inspiration, rounding of expiratory tips, square expiratory tips or breath-holding at expiration and high chest levels, probably result from a relative over-balance of inspiratory by expiratory forces. This work on correlations between psychologically observable trends in the individual, and features of his spirogram, is still in progress. The results are as yet only suggestive. We expect to report on them further in the near future.

Summary

A study has been undertaken of respiratory tracings with special references to psychological correlations. We use an ordinary metabolism apparatus, with very low resistance to respiration, and enlarged so as to be able to include the vital capacity on the same tracing. In describing the curves we consider rate, depth, respiratory level, rounding of tips, "hooks," "squares" (breath-holding) and "spikes." Averages for the Institute group are given. The tracings are quite individual and relatively constant in approximately 75 per cent of the cases. No correlations with chest shape were found. Respiratory efficiencies varied from 8 to 32 liters of oxygen breathed for one liter absorbed. Spirograms were obtained from small groups of asthmatics, hebephrenics and paranoids. A study of correlations between the records and the intaking and eliminating tendencies of the individual is now in progress.

References

1. Alexander, Franz: The logic of emotions and its dynamic background, Int. J. Psycho-Analysis, *16:* 399–413, 1935.
2. Alexander, Franz, Bacon, C., Levey, Harry B., Levine, M., Wilson, G.· The infiuence of psychological factors upon gastro-intestinal disturbances: a symposium; Psychoanalyt. Quart., *3:* 501–588, 1934.
3. Deutsch, Felix: The Production of Somatic Disease by Emotional Disturbance, The Research Publications of the Association for Research in Nervous and Mental Disease, Vol. XIX, pp. 271–292, 1939.
4. Dunbar, Flanders: Emotions and Bodily Changes, Columbia University Press, New York, 1935.
5. Finesinger, J.: By personal communication.
6. Fenichel, O.: Ueber respiratorische Introjektion Int. Z. Psychoanal., *17:* 234–255, 1931.
7. French, Thomas M. and Associates: Psychogenic Factors in Bronchial Asthma, Psychosom. Med., Monograph, To be published.
8. Freud, Sigmund: Collected Papers, Vol. III, Hogarth Press, 1925, p. 13.
9. Freud, Sigmund: Collected Papers, Vol. III, Hogarth Press, 1925, p. 473.
10. Gesell, Robert: Individuality of breathing, Amer. J. Physiol., *115:* 168, 1936.
11. Golla, F. L. and Antonovitch, S.: The respiratory rhythm in its relation to the mechanism of thought, Brain, *52:* 491–509, 1929.
12. Greene, J. A. and Coggeshall, H. C.: Clinical Studies of Respiration, Arch. intern. Med., *52:* 226–238, 1933.
13. Howell, W. H.: A Textbook of Physiology, W. B. Saunders and Co., Philadelphia, 1933.
14. Institute for Psychoanalysis, Five-Year Report, 1932–1937.
15. Jones, E.: Die Empfaengnis der Jungfrau Maria durch das Ohr. Jahrb. f. psa. Forschgn., VI, 1914.
16. Nicholson, Hayden C.: Localization of the central respiratory mechanism as studied by Local cooling of the surface of the brain system, Amer. J. Physiol., *115:* 402–409, 1936.
17. Oberndorf, C. P.: Submucous resection as a castration symbol, Int. J. Psycho-Analysis, *10:* 228–241, 1929.
18. Pitts, R. F., Magoun, H. W., and Ranson, S.: The origin of respiratory rhythmicity, Amer. J. Physiol., *127:* 654, 1939.
19. Roheim, G.: Das Selbst, Imago, *7:* 1–39, 1921.
20. Römer, G. A.: Probleme und Methoden der modernen Persönlichkeitsforschung, Stuttgart, 1930; and Die wissenschaftliche Erschliessung der Innenwelt einer Persönlichkeit, Basel, 1930.
21. Smith, Wilbur K.: Alterations of respiratory movements induced by electrical stimulation of the cerebral cortex of the dog, Amer. J. Physiol., *115:* 261–267, 1936.
22. Trumper, Max: Clinical spirograms and their significances, Int. Clin. *2:* 101–105, 1929.
23. Weiss, E.: Psychoanalyse eines Falles von nervoesen Asthma, Int. Z. Psychoanal., *8:* 440–445, 1922.
24. Wittkower, Erich: Further studies in the respiration of psychotic patients, J. ment. Sci., *80:* 692, 1934.
25. Wittkower, Erich: Studies on the Influence of Emotions on the Functions of the Organs Monograph, J. ment. Sci., July, 1935.

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THE COURSE OF A DEPRESSION TREATED BY PSYCHOTHERAPY AND METRAZOL*

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INTRODUCTION

DOUBTS AND misgivings assail the contemporary psychiatrist regarding the importance of psychological or biological factors in the etiology of functional psychoses, and psychological or pharmacological methods in their treatment. The discovery of pharmacological shock therapy for the psychoses which was for only a short time received with cautious conservatism is largely responsible for this state.

New methods of therapy should be objectively evaluated for only emotional bias is portrayed by immediate acceptance or rejection. The avidity of interest aroused and the rapidity with which the use of insulin and metrazol treatments spread into every corner of this country from university clinics to state hospitals attest a certain preparedness and eagerness of the rank and file of psychiatrists for an organic approach to their problems.

Two striking statements typifying this attitude may be cited. Bernard Sachs in his "Present Day Trends in Neuro-Psychiatric Research" writes with enthusiasm of chemical, pharmacological and electrical studies on the nervous system but has not one word in 1939 for psychological research. He pleads for neuropsychiatrists who have adhered to orthodox doctrines to keep their forces well in hand for an impending battle to keep neuropsychiatry on a sound organic basis. Meyerson (*15*) states that "There is more reason to extol in the case of the psychoses the pharmacological measures and the psychological stimulations than psychoanalysis."

Perhaps it might be stated more dynamically that the kraepelinian hope for specific organic bases for the psychoses has never been abandoned but only repressed into latency. Nissl's (*16*) attempt to find specific cellular morphological changes in the psychoses, including melancholia, failed so that the hope for an organic etiology became displaced onto modern chemical pathology.

On the other side, among the psychoanalytic psychiatrists whose perspective may be narrowed by the fact that the field of vision of many includes only psychological causes, psychodynamic explanations and pure psychotherapy, another attitude toward shock therapy was naturally expected and found. Convulsive seizures as a means of treating a mental disturbance are abhorent and any good in them is *a priori* denied. An example in point is Zilboorg (*22*) who states:

> From the beginning of the 19th century on, through the great strides made by chemistry, we have returned imperceptibly to the pharmacological ages of yore (metrazol) to the Drekapotheke and Hippocratic humoralism. . . .
>
> Except for a few cases, these therapies with their induced convulsions— . . . represent the expression of an ancient trend of

* Read at a meeting of the Chicago Psychoanalytic Society, February 16, 1940.

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conscious and mostly unconscious hostility against the mentally ill.

Among these hostile therapies Zilboorg includes hyperpyrexia for general paresis, an empirically derived method of unquestioned therapeutic value against a disease of spirochetal origin. There are other therapies none the less valuable because of their empirical origin. There is an unexpressed idea that psychological disturbances cannot be treated by directly attacking the organ whose functions are expressed subjectively in the psychological symptoms; and if any benefit results it must have a psychological explanation. This is obviously an error in biological reasoning. Furthermore, surgery may be for some a sublimated sadism but this does not make it less valid as a therapeutic procedure. The emotional attitude of the neuropsychiatrist may be, as Zilboorg stated, hostile to his patient but a technic of therapy cannot in itself be sadistic.

Just as the confirmed organicists use pharmacological shock as a weapon to promulgate their organic bias in a battle against psychological concepts, so the psychoanalysts consider metrazol a threat against all that they have won in a bitter struggle to disseminate a psychodynamic point of view. Contrast the statements of Sachs and Zilboorg and one gets the impression that a final and decisive battle is about to be fought over the fertile valleys of psychiatry. Neither is obviously a scientific point of view and both serve to create doubts and misgivings in the minds of many.

These matters of professional emotions are unimportant if one can be satisfied that the treatment, for whatever reason, works. The facts are that it does effect remissions in depressions. (*4*, *10*, *18*) Depressions of long duration—two or three years—can be stopped in a week. The recovery rate is high no matter how long the duration because of the absence of deterioration (*10*). Depressions of the type known to continue for six or eight months can be aborted to two or three weeks' duration. Involutional melancholia, a devastating condition which often loses the race to cerebral arteriosclerosis can be overcome in a few weeks. The experiences of various workers in the field are fairly clear and unequivocal; they are summarized briefly as follows:

In this country Bennett (*1*) was the first to use convulsive shock therapy in the depressive psychosis. In September 1938 he reported nine depressed patients in whom he obtained uniformly excellent results after two weeks of treatment. In a later publication many more recoveries were reported even from mid-life and presenile depressions (*2*). He encountered no complications although three patients were past sixty years of age. He stated that the patients would awaken from the treatment in a euphoric mood with remarks such as "I have come to life." The author speculates that the severe circulatory shake-up or the profound biochemical cellular metabolic reaction may be responsible for the improvement. He also indicates the possibility that the demands of an overstrict conscience for punishment were satisfied by the shock treatment, freeing the conscience and enabling the patient to start life over again liberated from its compulsive pangs. However, later in the paper he states, "We cannot explain the mechanism of recovery in these patients but it is physiological in these cases and not psychological. The circulatory change in the cerebrum resulting in the convulsions seems to have some direct effect upon the emotional centers of the brain, alleviating anxiety and depression. The effect seems strikingly similar to that described after prefrontal lobotomy." Indeed, Lyerly, (*11*) using the method of prefrontal lo-

botomy (*14*) on twenty-one cases of involutional melancholia, psychoneuroses and anxiety states, reports cures without deficit in any mental function.

Bennett (*1*) writing again in the Bulletin of the Menninger Clinic, enumerates the strong feelings of guilt which his patients demonstrated and their great need for punishment which apparently was gratified by means of an induced convulsion. The author here brings in the "death instinct" but its relationship to the therapeutic effect is not clear. This paper is quoted only to show the author's indecision for in almost two simultaneous publications he favors a physiological and then a psychological explanation of the beneficial effect of metrazol in depressions.

Wilson (*20*) reports a five-month follow-up study on 37 patients diagnosed as manic depressive psychosis or involutional melancholia treated with metrazol. Depressed or agitated patients, after an initial shock, were miraculously improved, often showing a mild elation. This so-called cure would fade or the patients even become worse if treatments were not continued. Sometimes an improved condition was upset by subsequent shocks. In the interval between shocks the patients dreaded the treatment and focused their attention on back pains and aches which resulted therefrom. During this period hydrotherapy and occupational therapy were utilized but no mention is made of psychotherapy other than the word itself. Of the 37 patients, six months after discharge, 76 per cent were definitely improved. Of 19 cases of involutional melancholia, 78 per cent made a good social and economic adjustment.

Cronick, Scherb and Karnosh (*5*) report the results of metrazol treatment in 47 patients with manic depressive psychosis. They indicate four types of results: 1) Abrupt recovery of a total type and permanent for the present cycle (usually 5 shocks); 2) Gradual improvement with continuous trend to normality, taking as many as 10 to 25 shocks to achieve; 3) Improvement, followed by relapses on cessation of therapy, the cycle repeated in many cases two to four times; (In this group are depressed patients who relapsed into a manic phase, itself responding to treatment). 4) Patients with no remissions.

Grotjahn (*8a*) reported a patient 54 years of age who was given metrazol while in a complete negativistic depressed state. Following the injections she felt kinder toward people, stated that she was calmer and felt better. She began to dress better, go to amusements, arrange flowers in her room and laugh and sing. In describing her recovery she said: "I hated everything. I even hated the door, the rug under the table. During the metrazol treatments I put myself in your hands. It was like being reborn. The hate left me. I did not give up the depression; it just disappeared. I was only watching. The metrazol took the depression out of my hands." Grotjahn remarks that during the depression the patient spoke well of her mother but in the stage of improvement she manifested clear hostility and hate.

The Youngs (*21*) report favorable results in 21 cases of depression treated by metrazol. Improvement was noted after the first or second treatment and the average number of shocks was seven. The more marked the depressive features, the better the response, whereas anxiety seemed to affect the results adversely. The authors used psychotherapy after the pharmacological treatment. Recovery was associated with only a superficial type of insight and the patients were more interested in returning to their usual lives than in uncovering psychodynamic features in order to prevent future recurrences. The Youngs feel that there is danger of dis-

regarding psychological factors and neglect of broader aspects of patients' problems because of the striking results of the new method.

Meduna and Friedman (*19*) point out the lack of possible controls in considering remissions in depressions since these spontaneously recover in extremely variable and often very short periods of time. It is even difficult to be certain that there is shortening of the depression but experiences of many psychiatrists as well as our own seem to indicate a positive value. Meduna indicates that it is not known what particular phase of this therapeutic convulsive syndrome is of importance in producing the remission. The anxiety and fear may be as important as the convulsive seizure. Anxiety and panic from camphor injections without convulsions were beneficial in some cases. In order to lessen the fear, Meduna has used scopolamin before the injection and obtained excellent results. Cohen (*3*) found that fear of treatment had little value and that the induced fear caused by slow injections of small doses of metrazol had far less beneficial effect than the convulsions. Bennett now abolishes most of the clonic phase of the seizure by curare, reducing anxiety without diminishing therapeutic effectiveness. Lipschutz (*9*) and his co-workers, however, found that schizophrenics and depressives with marked and obvious guilt feelings and need for punishment responded best to metrazol.

The use of metrazol has recently become widespread in the affective psychosis and, as Menninger states (*13*) its therapeutic effectiveness may be greater in depressions than in schizophrenia. Younger psychiatrists even speak of cures although the permanency of remissions has not yet been established. Whereas in the case of schizophrenia the new pharmacological therapies have livened up the mental hospitals and psychiatrists are doctors once again, they have also served to redirect interest in what was often considered a hopeless state. If pharmacological methods of treatment should ultimately prove to be of little value, even then the great attention of nurses and doctors to the patient, their therapeutic enthusiasm, their interest in keeping touch with patients for purposes of statistical recording, *i.e.*, "Former Patients' Associations," etc., all serve indirectly to gain for the schizophrenic some possibilities of interest on the part of persons who could be used for psychological support.

For the depressions, shock therapy tends to reduce psychological understanding. Interest in uncovering basic psychological causes has decreased, for the busy psychiatrist now hardly waits for his patient to undress in the hospital before shocking him into insensibility with his first metrazol injection and even uses the method in ambulatory patients outside the hospital. No one has stressed as much as Meduna himself the necessity for careful psychological understanding and therapy of patients during and after shock and he believes that many failures of the method are due to absence of appropriate simultaneous psychotherapy. In depressions with a much better outlook and with far greater possibility for permanent stabilization, shock therapy has diminished psychological interest and worse yet, the treatment threatens to invade the entire field of the psychoneuroses. We can only speculate as to the possibilities for the production of psychoses in these conditions.

In the literature we are unable to find any but occasional fragmentary psychological studies of depressed patients treated by metrazol. We wish to report in detail one such case treated psychotherapeutically before and after metrazol and our general experiences with the

drug in depressions. Our theoretical conclusions will indicate, we hope, that metrazol is of value in this psychosomatic condition by virtue of its physiological and psychological effects and that it is a useful method of psychosomatic therapeutics when propertly utilized.

Case Report

Past: The patient was first seen by one of us (H. V. McL.) in October 1937. She was an attractive very feminine appearing woman, 43 years old. As far as is known the only member of her family who ever developed any severe mental illness was a maternal aunt who had for many years been hospitalized for a depression. Only a few significant facts are known about the patient's early history. She was the oldest child, adored by her father. A sister's birth, when the patient was four, was traumatic since the patient no longer had the entire devotion of her parents. She was always a good sweet child who shifted her responsibilities in the family on to her sister or mother. At twenty years, she married her husband, Thomas, who was then a promising handsome young man. He later became a wealthy successful lawyer. Three children were born: Betty, 23 years, married; Dorothy, 20 years; Ann, 10 years. For nearly twenty of the twenty-seven years of married life, the patient consciously felt that her marriage was perfect. The compulsive traits of her husband were obvious to others, but she maintained that he was all desirable. The two oldest children were well behaved and attractive. To them, she was a self-sacrificing, devoted mother. Her household was run with exquisite compulsive perfection. She developed no meaningful sublimated interests.

Present Illness: In the winter of 1936–1937, the patient began to complain that she was a failure as a wife and that she was responsible for the maladjustment of Ann, the youngest daughter. She neglected the management of her complicated household. A psychiatrist was consulted who made the diagnosis of neurotic depression. Any deep psychological therapy seemed contraindicated in view of the limited "ego span" of the patient. From the superficiality of all her human relationships and her failure to develop any meaningful sublimations, it seemed apparent that all of her object relations had been primarily narcissistic in character. Later observation by both of us confirmed this judgment of the first psychiatrist. After a few interviews with the psychiatrist, the patient was advised to travel in order to separate herself from her husband and Ann. On her return in the summer of 1937, she and her husband lived in a hotel so that she was free of household responsibilities and Ann was away at camp. During the summer she was much improved; she rode, swam, played golf and participated in the gay activities of her social group. In the fall, Ann returned and on moving back to the home the patient had again the responsibility of household management. Probably of greatest importance for the development of her illness was the fact that her husband had just begun psychoanalytic treatment with her first psychiatrist. This necessitated the transfer of the patient to one of us. (H. V. McL.) In the light of later events, it is known that she felt this as a rejection. Her designation of her psychotherapy as "analysis" is an indication of her resentment at being rejected by the first psychiatrist.

When first seen in October 1937, the patient presented the picture of an agitated, anxious appearing woman. She complained about her complete inadequacy as a wife and her failure all her life as a mother. She felt that she had

really never done anything for anyone but had always been utterly selfish; now she was ruining her husband. Ann's aggressive, unsocial behavior was all her fault. She was unable to manage her house and never had done it well. She was herself going all to pieces; her skin and hair were frightful. Each morning she awoke drenched in sweat, unable to decide what to do with her day. Her husband gave all the orders to the servants and made all social engagements. After her breakfast tray, she would feel an overpowering need to get away from the home which seemed so unattractive to her, and yet she would delay her departure because she was unable to decide which dress or hat she would put on. In the morning before she left her home, she would have five or six loose stools and profuse vaginal discharge. The diarrhea would cease as soon as she left the house only to return the next morning. For five or six hours of the day she would walk desperately and would return home just before her husband came back from his office. After such strenuous activity, she felt physically exhausted, but emotionally she was calmer. In the evening she was able to enjoy being with her friends or going to the theatre. In retrospect the next morning she would report that she was inferior to everyone else at a gathering. Actually she would admit that during the evening she had felt well and happy. When she came to an interview she was always perfectly groomed although she protested that she was messy, dirty and unattractive. At first she greeted the psychiatrist in a formalistic, over-polite manner. During the interview she would throw herself around in the chair or in bed in a dramatic fashion. As the interview came to an end, she would cling to the doctor, all the time protesting that this treatment was doing her no good.

Observations under Psychotherapy: In the beginning, the patient insisted that her marriage had been perfect. She said, "How could I be unhappy when Thomas gave me everything I wished for?" Gradually she began to express her resentment at Thomas—even during their engagement he had disappointed her; for example, his own anxiety kept him away from their engagement reception. After marriage he disliked going out as he became anxious in social gatherings. He would become fatigued in the middle of a dance or dinner party and she would dutifully go home with him. They would make plans to go on a vacation trip but again and again after all the plans were made or even after the trunks were packed, he would find it necessary because of business matters to postpone the vacation; or if they did get away to a gay resort, he would insist that it would be more fun for the two of them to be alone, and their meals would be sent to their rooms. Finally she admitted that she had insisted on the last child Ann because she thought another child would bind them together more closely; in other words, the child was to be a defense against the increasing tension of her unconscious dissatisfaction with Thomas. During the pregnancy it occurred to her that she would have an abortion; such a murderous wish she quickly suppressed. After Ann's birth, she felt it was a nuisance to have a small crying baby around the house; she alternated between rejection of Ann and overprotection as a compensation for her hostility. Inevitably Ann developed into a very trying child, which only increased the mother's guilt. At about this period in the patient's life she began to suspect her husband of infidelity. Thomas insisted on vacations and parties with the suspected woman and her husband. The patient repressed all her jealousy, acquiesced in foursome trips and convinced herself that she was

a devoted friend of her rival. The rival died about a year before the illness started. The long repressed hostility toward this woman came to consciousness and she occasionally thought, "I'm glad she's dead."

During the same period her oldest daughter married. Consciously she was pleased by this but her unconscious hostility was shown in her doubt of Betty's happiness (there was no real basis for this doubt) and her concern at being a grandmother. In the winter of 1936–1937 she became conscious of a strong sexual interest in her gynecologist. She was appalled that she should have such forbidden feelings. Her attempts to deny the existence of such an attraction failed and she continued her attempts at seduction of her doctor. He however, refused to have any sexual intimacy, although he saw her socially and in tête à tête during the summer of 1937. These contacts had ended by October 1937. Her only opportunity for seeing him was her weekly visit to his office where local treatment for the vaginal discharge and endocrine therapy were being given.

The precipitating causes of the patient's illness seem clear:

1) A possible psychophysiological instability accompanying the menopause, decreasing libido serving to increase the tension of the hostile drives.

2) An ever increasing dissatisfaction with and anger toward her husband, arising from two sources: a) his failure to gratify her dependent needs, and b) his suspected infidelity, c) guilt over her rival's death.

3) The maladjustment of her daughter Ann.

4) The marriage of her daughter Betty.

5) Her own extramarital sexual desires and the rejection by the gynecologist.

6) Rejection by the first psychiatrist.

The illness falls chronologically into four periods:

1) *October 1937 to December 1937.* The patient lived at home with a nurse-companion who was instructed not to limit the patient's activities unless a real suicidal danger appeared. The patient was finally hospitalized for the sake of her husband and Ann, and to prevent any further accumulation of guilt, as she actually was neglecting her house and child and making her husband's life miserable. She was seen by the psychiatrist almost daily. At first denial of any imperfection in her marriage, of any possible anger against anyone else was her method of defense against hostile feelings. Gradually she was able to verbalize some hostile feelings, but because of the guilt, she still turned the major part of the hostility against herself in feelings of self-depreciation.

2) *December 1937 to June 1938.* While the patient was in the hospital, her daughter Dorothy, who was away at school, suddenly became gravely ill. She could not decide whether to go to her or not but the psychiatrist insisted she must go. Immediately she began to plan and made the journey with her nurse arriving just before the daughter's death. To her husband, Dorothy's death was an almost unbearable loss, since the husband had been particularly close to this child. The patient was calm, brave and dry eyed. Her behavior brought terms of great praise from her husband and friends. Within a week all of the symptoms of her illness had disappeared. She was convinced, however, that she was responsible for Dorothy's death. She had wanted to hurt her husband and Ann and had been guilty of extramarital desires. Dorothy's death was her punishment. It seemed advisable for the patient to get away from her home, so with a nurse she went to Florida. She continued to be obsessed with

guilt for Dorothy's death. In March her husband nearly had a fatal automobile accident. The disappearance of her obsession coincides with this accident to the husband. On her return home, the patient easily resumed the management of her household. Her relations with Ann were markedly improved and to her husband she was a sympathetic, comforting wife. She never mourned Dorothy.

3) *June 1938 to September 1938.* She became disturbed again around the anniversary of Dorothy's birth. During the first interview on her return she talked about Dorothy and tried dramatically and desperately to cry. Within a week she returned somewhat agitated and depressed. She quickly revealed the precipitating causes of the return of her illness. When she returned from Florida she found that Thomas had put a photograph of her dead rival in the living room. Her resentment and anger were repressed, but a further incident caused intolerable resentment. Thomas told her that he and the husband of the dead woman were giving money to an educational institution as a joint memorial for the dead woman and Dorothy. The use of this new illness to punish her husband was partially conscious to the patient. She could see it herself as the adult equivalent of a childish temper tantrum but she felt incapable of checking her rage. A dramatic incident will illustrate her exhibitionistic attacks on her husband. For an hour she had been talking quietly and rather normally to the doctor when she heard her husband's car on the drive. Immediately she began to shout and complain about how sick she was. In contrast to her earlier illness, she felt relatively quiet during the day but, with the husband's return at night, all her symptoms became exaggerated. Toward the doctor she also became enraged, once leaving the office with the angry threat that this was the end. From the moment of her knowing that her psychiatrist (H. V. McL) must because of necessary departure from the city transfer her to a third psychiatrist, she denied all insight offered. She protested violently that it made no difference to her if the physician left her since the treatment had been of no help and no one could help her.

In the interval, after the psychiatrist's (H. V. McL's) departure for her vacation in August 1938, the patient had apparently become much worse again and was then seen daily by R. R. G. She had added to her complaints a fear (?) that her husband's analysis was useless because since his analyst was away on vacation he was as bad as ever. Otherwise no noteworthy change in behavior was observed from that previously described.

After ten days the patient was persuaded to accompany the psychiatrist on his vacation to a summer resort for three weeks. Although she felt it useless there was obviously gratification in the attention this indicated. The inconveniences typical of a summer resort probably contributed a large masochistic gratification to her.

The patient had a great deal of anxiety and agitation which was reflected in her restlessness, walking up and down, wringing her hands. Her previous life had indicated that very little motor skill was ever acquired and it was impossible for her to displace any of her repressed hostility on to formal games. While she was in these tense and agitated states an attempt was made to encourage a free expression of hostility. It was apparent that there was great fear that if she allowed herself to express her rage, it would be of a murderous type. On several occasions she attacked the psychiatrist from behind, kicking him and scratching at him, with much relief of tension and con-

siderable betterment for several days after. One morning she awakened and her nurse, who was much shorter and slighter in build than she, lay sleeping in the adjoining bed. The patient picked up a chair and attempted to hit the nurse but fortunately the rickety summer resort furniture broke before her end could be accomplished.

During the period when a friend was with her as a companion she was at her best and likewise in the presence of strangers. When her younger sister was with her the patient had the most severe states of agitation and would make gestures with her hands as if strangling a young baby by the neck. This gesture was accentuated at the time when her youngest child wrote to her about certain problems at camp.

On arriving in the country the patient's belongings were searched fruitlessly for drugs which could be utilized for suicide. Nurse and companions were instructed to make no restraint on the patient's activities and have no concern over suicide. The patient was informed of our lack of concern. On several occasions she treatened to kill herself, especially when tension was high and hostile impulses were close to the surface, and ran toward the lake or into the woods. No one followed her and she always returned home in a very short time.

One day when the psychiatrist and patient were standing on a porch about six feet above a grassy sward, the patient threatened suicide and began to rock herself over the railing. Her excursions were slight but an attempt was made to lead her gently away. She immediately resisted and tried to dash away in an apparently frenzied attempt to throw herself over. The psychiatrist attempted further to prevent this and a violent struggle ensued, with the patient fighting like a tigress to jump over. She succeeded, dropped on her feet and walked away, indicating the exhibitionistic nature of her suicide attempts and the dangers of interference.

The patient verbalized no direct evidence of affection for the psychiatrist. She tried to keep him with her as long as possible and often leaned against him physically as a small child against a parental support. No erotic interest was apparent, although the psychiatrist's sex was altered in the shift from H. V. McL. to R. R. G. The same methods of psychotherapy were employed and no appreciable improvement in the patient was noted.

The therapeutic measures utilized from October 1937 to September 1938 were as follows:

I. Continuation of endocrine therapy (Theelin).

II. Nurse-companion.

III. Mild phenobarbital sedation.

IV. Psychotherapeutic interviews which attempted 1) to correct her unrealistic perfectionistic attitudes; 2) to show the secondary gain of her illness a) as a method of hurting her husband, b) as a method of gaining narcissistic and exhibitionistic pleasure and c) as a method of avoiding family responsibilities; and 3) to direct outward her hostile self-destructive drives. Very little attempt was made to discuss her problems apart from her contemporary life situation.

Psychodynamic Summary: The patient was an extremely dependent, self-centered individual. Her object relations had always been dependent and narcissistic in character. She had always been protected and by means of her family's and husband's important positions her self-esteem was gratified.

She married a man who would be able to satisfy her oral receptive desires but who was himself strongly dependent. Thus the relationship was a mutually dependent one. She consistently denied any dissatisfaction with her hus-

band. Oral dependence was substituted for the frustration of her feminine wishes. By both the husband and wife the illusion of a perfect marriage was maintained. From this fiction the patient obtained narcissistic and exhibitionistic gratification. When the marriage was threatened by her husband's infidelity, she had a third child. Against this child, however, she developed destructive feelings which were in part a repetition of her early rage against her mother's pregnancy with her sister, and in part against her husband and his supposed mistress. The guilt for such a murderous wish made her turn the hostility against herself in the form of marked self-depreciation and castigation. The patient also identified with the rejected child. After the death of her husband's suspected mistress, the patient was no longer able to repress her jealousy and death wishes against a mother-sister figure. The marriage of Betty, the oldest child, caused still more unconscious rage. Through the interest in her gynecologist, she attempted an erotization of hostile feelings. The rejection by him was a fresh trauma to her feminine narcissism. The coincident rejection by the first psychiatrist increased and blocked any erotization of her hostility. Her only solution was the turning of her hostile feelings against herself in her illness. By this means she could revenge herself on her husband (also on her gynecologist and psychiatrist), and punish herself for such hostility. The illness itself gave her masochistic, narcissistic and exhibitionistic gratification. Her compulsive need for muscular activity served as a partial outlet for aggressive feelings as is shown by the improvement each day after she exercised to the point of exhaustion.

Some explanation is needed of her sudden return to apparent health and of her inability to mourn Dorothy's death. This death symbolized the turning outward of her hostile wishes against her motherly husband—and at the same time against the child (her sister). The obsessional guilt over Dorothy's death remained until through another intervention by fate the husband almost died. Through this accident the hostility against the child, which was largely a displacement from the parents who produced the child, found direct expression. After the daughter's death, greater narcissistic and exhibitionistic gratification could be obtained from her dramatic return to apparent health. Repeatedly her friends and husband told her how courageous and brave she was. All mourning for the real loss of a daughter was pushed away —since her death was felt more as a realization of her hostile wish against her husband rather than as an actual object loss.

In May 1938 she was beginning a period of mourning, when again her dead came into her home. Her conscious anger at this stupidity on her husband's part probably would not have overwhelmed her, but when she learned of the combined memorial to her dead daughter and dead rival, she felt her rival who had already taken her husband was now stealing her child. Her illness was a thinly disguised attack on her hated husband.

Metrazol Therapy: The patient returned to the city in September 1938, and immediately entered the Michael Reese Hospital. Here her behavior was again typical of an agitated depression. For ten days hypodermic injections of progynon and proluton were alternated without appreciable change.

While visiting at her mother's home, the patient swallowed some sedative tablets. When she did not awaken the next morning, strychnine and caffeine were employed and she was easily brought out of her stupor. She stated 25

tablets were taken and appeared quite guilty, but also seemed obviously pleased with our efforts to revive her and our interest in her attempt. Later she admitted it was only five tablets and for just a good sleep. That afternoon she pretended not to hear and see, mumbled a great deal and stated that this was a make-believe world, that she really was dead. It was then that metrazol treatment was decided upon.

The hormonal injections were stopped and she was given 4 cc. of 10 per cent metrazol solution intravenously, resulting in a seizure for 55 seconds after which she dozed for a short time. The patient awakened with a childish smile and at first was somewhat disoriented but gradually relocated herself as to time and place. There was a complete amnesia for the treatment. She felt better within an hour and was more cheerful, and remained quiet in bed, preoccupied with her thoughts and in general had a more optimistic attitude. She awakened in the afternoon from another sleep quite disturbed and was found telephoning her husband in a stuporous-like state, telling him *she had killed him and their daughter and that then the psychiatrist had killed her*. With reassurance the patient quieted down but did not sleep all night. She was soon able to recognize the triple murder as a dream although this acceptance was not complete for several days. Prior to this dream the patient had remembered no dreams and categorically stated that she never dreamed. In the evening she appeared cheerful and talked continuously about her hair, skin, teeth and nails and how to get well. The next day she was calm, pleasant and very cheerful after a drive with her husband. During the evening, she went out to dinner and a show. She fixed and straightened out her belongings as she liked them and was very happy in relating the happenings of the day and seemed quite normal. In the tub there was talk with great pride in how she wanted to get her skin better and to get well. The patient was thrilled as a child when she suddenly discovered feeling in her hands and legs and a general tingling sensation. She made arrangements for hairdresser and manicure and was interested in people around her and had no complaints. The patient was unable to sleep because of excitement.

The following morning (Tuesday) she greeted the psychiatrist by saying, "Well, I guess my unconscious is on the surface." She was extremely apprehensive and felt that she was a killer and was about to murder someone. It was explained to her that the hostility would not lead to action and that like all people she was expressing it in the form of fantasies and dreams. She was somewhat assured and felt better. Mildly erotic behavior was demonstrated to the psychiatrist. On the way to dinner while downtown she skipped and jumped in the street and insisted on using the telephone. She called the psychiatrist and wanted to say something but apparently couldn't get it out but finally said she wanted to straighten out the idea that she was going to do something terrible. She was quite disturbed that evening until after dinner when she became depressed again, feeling unable to do anything or concentrate. The patient would be very quiet and then all of a sudden engage in a tremendous burst of activity around the room. She fantasied talking to the psychiatrist all night long in poetry and then he seemed to be talking to her about herself and saying, "It is too late; you haven't taken advantage of your opportunities and you are loathsome." There was a certain lightness about it as if the psychiatrist really didn't mean it.

The next morning (Wednesday) she told the dream previously referred to,

which indicated that she had killed. *There was a sudden loud noise outside the hospital and she looked out and saw that her people had been traveling in two cars to come to her rescue at her request. The loud noise was an automobile accident and they were bringing Betty into the hospital because her baby would come too soon. She concluded that in the accident her husband and daughter had been killed and that she was responsible and was going to be punished by me.* Wednesday morning she was given 4½ cc. of metrazol and had a violent convulsion. This was followed by a frenzied attack in a semiconscious state, with the patient out of bed. She lay on the floor and kicked violently at us. At the same time she was extremely apprehensive and tried to run away.

Most of her conversation that day was about how much of an ingrate and a terrible woman she was and how she deserved everything she was going to get. Nothing eventful occurred further except that toward evening the patient began to worry that in the morning we were going to take her to a state hospital and she wondered what to wear and take along, and actually looked over her belongings. On Thursday in the morning she had a very glassy expression in her eyes and was unable to concentrate. She tried to drown herself in the bath tub by holding her head under water. The remainder of the day she stared at objects and out of the window for long periods of time. Toward evening she became a little more cheerful. On Thursday the 21st the patient stirred a great deal and concentrated poorly and would start to say a few words like "Just a minute," and "Well." At 9:40 p.m. she called the psychiatrist on the phone to contradict the statement made on Tuesday. She did *not* have a good time and she wants to do something about it right away. Tomorrow would be too late. Still, in general, she was cheerful. In this phase there was outspoken affectionate and erotic feelings demonstrated to the psychiatrist.

On Friday she was very restless, wrote a great deal but destroyed many of her notes. She talked much about the medicine given and that it was going to her head. Fear was expressed that she was going to do something rash and she asked the nurse to please tie her hands up some way so that she would not hurt any one. She could not decide if it were the nurse, doctor, or husband she wished to kill. Although she could not concentrate and seemed quite agitated, she surveyed herself in the mirror frequently and looked at her skin. The patient felt that she had been poisoned by the medicine, which she had thought would make her well but instead she had become insane and was dying. Throughout these days doubts had been present whether she was to be removed to a sanitarium or state hospital. It was discovered that on awakening from her dream she *thought she was in a state hospital lying next to a colored woman and that the room itself was like a coffin.* She was quite disturbed on Thursday about her husband's analysis; was it done for his or her sake? People were lying to her. She whispered to herself quite a little bit and was quite paranoid. Apparently she was trying to rationalize some basis for her hostile feelings and her guilt, but in general her attitude was much improved, being less interested in her physical difficulties.

The following note was written on Friday, three days after the second metrazol convulsion: "Had you planned the medicine really before my call? Only answer that truthfully. Dr. McLean was right. I was afraid of being myself; it wasn't so bad then after all. I was *so* happy to see you Tuesday. Now I realize it but too late. The dream I told you about Monday was true in

every detail excepting for my having heard the noise of the crash. You asked is that true and I said no, meaning I heard no crash really, that is only a part of dream, I meant untrue. Also I call from drug store to reverse my decision because I didn't want to live alone. By thinking too much and getting too mixed up about it I spoiled my whole future. When I said I didn't enjoy Tuesday evening I only meant because I didn't give them pleasure. I adore seeing them but I was so mixed up about the decision and medicine. As though medicine could alter a decision. God, the reason I wanted to come to your office and the reason I called you was to tell you I didn't want to be alone. When you asked why I was glad I said because my eyes focused and my legs were steady and when you asked if I enjoyed being at home, I said 'No' because I wasn't giving them the pleasure I should have been. I'll say my mind *was twisted*. I knew asking for that medicine was a mistake. That's why I called the second time and that fixed it. Now I am unhappy and it's too late. My God, what shall I do? My angels and I'm alone. Thomas wouldn't believe me and I can't face it. I adored him so and now he won't believe that I loved him."

On Saturday 5 cc. of metrazol were injected, but this time only after a furious battle with her attendants. She literally had to be held by four people. On coming out of the attack she had an episode of mild fighting. Later in the day she stated that she knew she had been poisoned and that the medicine would cause her to become insane. She kept talking about the telephone call she made to the psychiatrist on Tuesday, because she said the wrong things. "I talked myself right into being insane." There was much talk about dying and being in Heaven and that her daughter was calling her. She believed that she was another person now, that the weak, hating person is gone because the psychiatrist gave her the medicine so she would be so strong it would be dangerous for her to be with her family. She believed that the last two treatments were different from the first. The first were to make her dream and understand her unconscious mind, the last two were punishment and have made her violent. The doctors have put insanity in her. She moaned, "Oh, if we had never started with this business. Instead of getting us all together again it is going to take us apart. It has changed everything, because I had a chance and didn't take it." She seemed to take the attitude that she was all right before treatments started but they made her worse and are taking her away from her family. She talked about her unconscious mind being on top of her conscious mind and it was causing her a lot of trouble. She was sure that she wasn't quite as terrible as we thought.

During the three days following the third and last convulsive seizures many notes were written expressing great guilt and feeling as if she were going to die or go insane.

On Sunday, she enjoyed her breakfast, was able to concentrate, read the paper, knitted, listened to the radio and did crossword puzzles. The next morning (Monday) she was cheerful and cooperative and hopeful, complaining only of pain in her neck from the struggle. On Wednesday, she worried about her "analysis." The psychiatrist thinks she is insane. He thinks she lost her chance. All the patient's statements were projected on to the physician and all her questions, accusations against herself. Why should she worry about her dreams? Why do I think she will harm someone? Why do I think she is so terrible? She was very cheerful during the next two days.

The final two days before her dis-

charge, the patient was as normal as she had ever been. There was a freely optimistic attitude as contrasted with a black pessimism before. The psychiatrist maintained a strongly reassuring attitude and interest and the patient was given the feeling that she would not be let down but further assisted.

Post Metrazol Status: After the patient left the hospital she came to the psychiatrist's office daily for about ten days. She stated that she had deep feelings during her depression but couldn't force herself to express the words. An example in point was the severe anger she felt at Dr. McLean's departure for a vacation without her. The change in her emotional status was tremendous. A great interest was shown in clothes, personal appearance and the usual feminine preoccupations. Gradually her normal weight was regained with a recovery of appetite. The guilty feeling regarding the dream only gradually disappeared and required a great deal of reassurance. However, within a week she ceased talking of her "unconscious." Relations with her husband were better than ever before and she was not inhibited sexually with him and had frequent orgastic satisfactions. Toward other men including the psychiatrist she assumed a frankly flirtatious attitude which she had never had before. This gradually assumed the proportions of seductive activity and finally an outspoken demand for sexual relations with her psychiatrist. The refusal was met by a frank verbalization of her ambivalence toward him. She began to resume her social activities and was busy with volunteer work in hospitals and welfare centers. Friends and relatives had never seen her so happy and interested, and remarked on her "*new personality*." Her social poise was remarkable as contrasted with a previous feeling of inferiority. As far as could be detected, hypomanic activity was evidenced only as contrast to her normal life, not detectable *per se*. She spoke freely of her illness and treatment. The most striking change in her outward attitude was a freely critical attitude toward her husband whom she directs instead of follows and outspoken ambivalence toward many people including her psychiatrists.

About two months after the treatment the patient went into a period of mourning for her daughter. This delayed mourning was evidenced by frequent thinking of her with crying. She read her old letters and went over her possessions. Her husband was little help as he had already gone through this period so she was forced to bring her mementoes to the psychiatrist and weep before him. Her dreams were infantile wishes. "Dorothy is alive and with her. Her death is only a dream." This period of mourning was associated with an increased consumption of alcohol toward which she has a great tolerance. The period of depression did not accomplish the work of mourning probably because the narcissistic regression was too great.

The patient has continued in her "new personality," gaining weight, sleeping well and without depression.

Discussion of Psychodynamic Alteration

In discussing the dynamics of this case the typical psychological features of a depression were reported. The central psychological feature of the recovery after the convulsions induced by metrazol was the dream and the patient's reactions to it. As was expected from the obvious evidences of hostility to husband and daughter the dream concerned itself with them as representatives, in her contemporary real life, of an old unsolved conflict involving hostility within her early family situation.

In the dream, husband, daughter and the latter's unborn child were killed. These obviously represent father, mother and the latter's pregnancy with the patient's next younger sister. In the patient's dream the rush to the hospital is to avoid an abortion, strongly reminiscent of the patient's desire to abort her own last child and clearly indicating her hostility in childhood to her own pregnant mother. Attempt is made to avoid the guilt by making it an accident. Yet the responsibility lies squarely on the patient with her strong dependent needs and overpowering desires for exclusive infantile gratification expressed by the fact that the family come to the hospital at *her* request for purposes of *her* rescue. This vividly portrays the typical infantile conflict which so frequently results in repression of hostility: Inability to express resentment against frustration because of the fear of losing the dependent position, and guilt and fear of retaliation for the anger. It was so deeply repressed that never before had it even penetrated into dreams. The hostility breaks through into the single dream and the psychiatrist retaliates with punishment. A further elaborated punishment brings her into a state psychopathic hospital where she lies neglected buried beside her black hostile unconscious.

The value of previous psychotherapy at this point becomes apparent. The patient's ego had been laboriously prepared for the presence of certain disliked and hostile unconscious impulses and is hardly surprised at them. Guilt feelings though present are rationalized to a great extent around the treatment, its purposeful effects and the insanity for which she is not responsible. Psychotherapy after metrazol was directed to reassurance. "It's only a dream." "Hostility in dreams and fantasies hurts no one." The hostile expressions were treated by her psychiatrists and husband as naturally appearing material which they had awaited and knew were important for her recovery. The patient herself recognized, and her material amply showed, that the first treatment mobilized hostility and that the subsequent treatments were interpreted as punishment. It is interesting that the last step in recovery was a paranoid projection of her conscience reaction on to the psychiatrist who could thus function in lessening its severity. The evidence of the conditioning value in this psychotherapy is obvious in the acceptance by the patient of this new super-ego to considerable extent and the resulting change in her freedom of expressions, more normal attitude toward sexuality and her vocalization without guilt of strong ambivalent attitudes. "I love you but I hate you too" is a great contrast to the all permeating sweetness and love attitude of her previous life. There can be no doubt that a real change in the patient's personality resulted with expression and acceptance of some of her hostilities without guilt.

Not alone were hostile tendencies liberated but the injection of metrazol by a male psychiatrist and the convulsive seizures had the unconscious significance of a sexual attack by a person to whom the patient had already a a strongly positive transference. After the first metrazol injection the patient pulled the psychiatrist to her in bed as in an amorous embrace. Later she would walk up to him and seem about to lean against him in an affectionate manner. The subsequently aroused erotic feelings were accepted and condoned up to a point by the physician thus freeing the patient from a strongly conditioned feeling of guilt previously attached to such feelings.

We can state that the change within the patient's personality structure and

the lifting of the depression were concomitant to the psychological trends expressed in the dream. This by no means signifies that the dream *per se* represented a mechanism of recovery, but was concomitant to it and represented a degree of insight.

Discussion of Metrazol in Depressions

How does metrazol effect remissions of depressions and more important how does it cause a change in the outward personality are questions about which we may speculate but cannot definitely answer at the present time. There is no question that attempts at explanation of the metrazol effects are extremely confusing and have led to many doubts concerning apparently well established psychological concepts. In general we may divide the possible explanations of beneficial therapeutic results into three categories as follows: 1) psychological, 2) biochemical, and 3) anatomico-physiological.

1) *Psychological theories:* The question naturally arises whether patients of a certain psychological type alone respond to metrazol thus making it possible to establish psychological criteria important to the understanding of the dynamics of the therapy. This is not possible from our own experience. The literature indicates that both manic-depressive and so-called involutional cases respond. We have had three failures, two in very young girls and one middle aged man who were extremely infantile characters with strongly demanding attitudes whose depressions were precipitated by relatively mild frustrations. Why these did not benefit cannot be stated but they reacted to the treatment with less fear, more passive resignation, and its punishing effect seemed to but increase the effect of the precipitating rejections. The Youngs find anxious and agitated depressions are less likely to improve, contrary to our own experience. Others indicate the presence of strong guilt feelings as an indication for metrazol which functions as a punishing agent.

Some authors believe that the drug brings the patient to a state in which narcissistic attitudes are loosened and transference reactions possible so that psychotherapy can be employed. However, this does not explain the action of metrazol—neither does implicating the "death instinct" or describing the process as "rebirth." The muscular movements and concomitant expressions of hostilities, sexual urges and secondary guilt may be likened to a violent abreaction of feeling similar to that produced under hypnosis or under great stress. Such abreactions are well known to have only temporary effect because without insight into basic problems the psychological tensions reaccumulate. We should expect rapid recurrences of depressions and certainly no lasting change in personality could be expected.

If the effect of metrazol is essentially psychological in character we may suppose its action is through a punishing effect similar to certain accidental or attempted self-destructive traumata of real life. Such a punishment if severe enough may serve by a preliminary expiation of guilt to bring to consciousness deeply repressed hostile feelings in their essential genetic connection so as to give to the patient some insight into their source. Our patient's post-metrazol dream is a possible example of this mechanism. Her dream and fear of removal to an asylum indicated still greater need for punishment and it may be postulated that only when this was satisfied by further convulsions could sufficient insight into repressed hostilities be accepted. It is true that our patient before metrazol could give vent to certain hostile gestures under

the influence of transference feelings but without insight into their meaning. One can compare them to the intellectual knowledge of a compulsive neurotic and not the deeper insight which followed metrazol.

Before we can accept this psychological theory we must await further indications that punishing agents without the concomitant biological effects of metrazol can produce the same results.

2) *Biochemical theories:* As Meduna found in schizophrenia, Notkin (*17*) likewise indicates a relative absence of convulsive episodes in manic-depressive psychosis and states that these cases may be schizophrenics with "affective reactions" or that because schizophrenic reactions are shown by affective psychotics there may be a common psychopathological basis. This highly questionable speculation is far from an explanation.

The theory of a biochemical effect is based on the fact that metrazol produces a cerebral anoxia of an acute and severe type and that this calls upon the reserve mechanisms of the body which overcompensate and thus re-establishes a more normal status as contrasted with a deficient state of oxygen utilization in the disease. Or, as Meduna suggests, the irritative action on the medullary centers results in a stimulation of cerebral circulation and metabolism. There is, however, no evidence that the depressed person has an abnormal cerebral metabolism or oxygen utilization. Concomitant anxiety is usually associated with an increase of basal metabolism and indeed a higher sugar tolerance. McFarland and Goldstein (*12*) show that manic-depressives have a higher blood sugar than normal. The clinical course, incidents of precipitation and recurrences seem clearly to deny a primary disturbance of cerebral metabolism. The temporary effect of a sixty-second convulsion repeated three times could hardly change the brain chemistry a great deal.

3) *Anatomico-physiological theories:* Bennett suggests that metrazol may act by damaging the frontal associative and inhibitory fibers as does the prefrontal lobotomy which has also been used in depressions with reported successes. We do not believe that the favorable results can be explained on the basis of anatomical changes in the cortex. The few convulsions necessary to induce could hardly cause such damage. The dazed state after a metrazol seizure with defective orientation, poor memory and slowed intellectual functions may last a day or so, decreasing in time and extent after each convulsion. The same condition is found in epileptics after a spontaneous seizure and is indicative of a temporary disturbance of cerebral blood supply. Paranoid states however are not related to the convulsions but are attempts to mitigate the guilt for the liberated hostile impulses by projection. We have seen no permanent deficit. Our experience with epileptics indicates that major seizures must exist for a long time before deterioration occurs. We cannot predicate that depressions are fewer where prefrontal activity is less. Furthermore, lobotomy is not only a physical but also a psychological trauma and the impression is widespread that the effect of lobotomy is not permanent. Davis and Sulzbach (*6*) show electrical changes in the cerebral cortex after metrazol therapy but the number of treatments was great and the primary condition schizophrenia. We should have electroencephalograms[1]

[1] Grinker, Serota and Levy, in some unpublished work concerning brain potentials before and after metrazol induced convulsions in depressed patients (average three to four shocks), have found definite changes in the direction of both increased and decreased frequencies and inverse amplitude relations. In some the curves indicated an increase in rhythm

taken on our cases of depression before and after each treatment. After many convulsions the pathological changes found in the brains of human epileptics have been localized not to the cortex but to areas of the brain such as the cormu ammonis having a relatively poor capillary network. We are satisfied that three or four convulsions cannot do great harm to the cerebral cortex except perhaps to very young individuals with little stabilization of circulation. In these young epileptics change in personality does occur but not such as would be expected from damage of inhibitory prefrontal fibers. They become more withdrawn and egocentric and show behaviour of explosive type rather than that significant of a freer and less inhibited personality.

To summarize: this theory postulates that metrazol-induced convulsions act by damaging the fine inhibitory neuroses of the prefrontal lobes thus releasing inhibited and repressed feelings and permitting permanently a freer expression of normal psychological trends. Attractive though such a theory is, there is little definite proof as yet but many indications for specific research.

We have heard a great deal of biological antagonism between melancholia and epilepsy. This antagonism must have an explanation and seems to be concerned with the depressed patient's inability to express hostility except in the form of self-accusatory, self-castigatory depression. This is a common observation and in our patient only the greatest tension broke into motor action and then with great secondary guilt. In fact, patients in desperation attempt to walk or run off their agitation. Since an essential feature of the depression is an inability to express hostilities, the absence of epileptic attacks is not surprising. In fact, depressed patients desperately try to release tension by forced activity. Is this inability to express resentment, rage and hostility through motor activity or verbalizations constitutional or innate in the melancholic and a congenital physiological pattern? We are not satisfied that an answer can be given until other factors concerned with early experiences which initiate lasting patterns of behavior are investigated. Regardless how this poverty of normal ego expressiveness arose, once established it seems to persist in the form of so-called rigidity of personality and occasionally deepens under certain psychological conditions into an even greater inhibition characteristeric of the melancholic. It seems to be grooved into the physiology of the diencephalic cortical relations.

If we consider the perfectionistic, rather rigid character of the depresed with an overly strict conscience psychologically, we see evidence of an excessively repressing force which holds down the aggressive and sexual drives that constantly push outward. The struggle ultimately must lead to an impasse and the completely restricted forces or energies become destructive physically and psychologically on the organism itself because of their diversion into old or so-called regressive patterns. Perhaps we can break this impasse between the emotional drives registered subjectively and the cortical inhibitory state and its strict super-ego manifestations, by externally forcing out the aggressive behavior in an artificially induced motor fit. We cover the hypothalamus with kerosene and set a spark to it—thus causing a detonation within the resisting cortex. Repeat this several times and a normal pathway from diencephalon to cortex is grooved

regularity; in others marked dysrhythmia with frequent spike formation not unlike that found in epileptics. This indicates that metrazol alters the physiology of the cortex but whether directly or indirectly, through a diencephalic level, cannot be determined at this time. However, our findings suggest that the effects are physiological rather than psychological.

and the forces need no longer spread downward to the viscera in an abnormal direction. We cannot express this mechanism as psychological *or* physiological but as two aspects of the same phenomenon. As Grinker and Serota (*8*) have shown, electrical or verbal stimuli producing hypothalamic activity excite the electrical activity of the cortex *and* influence thought processes. Just so metrazol explodes a partially closed pathway from diencephalon to cortex *and* enables hostile feelings to express themselves in dreams, thoughts and actions. Neither can occur without the other.

On the other hand, concomitant secondary psychological factors are extremely important. The ability to use the motor manifestations as an expression of hostility and the simultaneous punishment endured in the fit may temporarily wipe the slate clean of a psychological dilemma. However, it must of necessity be only temporary for if the same strict super-ego functions, repressive forces will again block motor or symbolic expression of aggressions in a relatively short period of time.

It is difficult to handle a patient without giving some psychotherapy so that a rigid control experiment of giving metrazol without psychotherapy is hardly possible. One patient under our observation had metrazol with no psychological understanding at all and she promptly relapsed. Another series of treatments with psychotherapy related to accepting her released hostile thoughts toward her father resulted in a good recovery.

It is our impression that fear is extremely important psychological evidence of improvement. The patients show the first sign of improvement at the same time as they become fearful and object to treatment. At the last treatment one patient cried, "Doctor, why do you do this? I never did anything wrong." Another pleaded with her God to forgive her. The patient reported here struggled violently. Another reiterated a promise to be good and get well. These evidences of fear seem to promise therapeutic results—absence of it, the contrary. There is also some evidence that if one goes beyond this stage in depressions the therapeutic result will be lost. The manifestations of hostility have been liberated, the fear is an ego-reaction which must be treated psychologically to permit retention of an "open pathway" for hostile impulses and prevent further repression. A new conditioning is necessary to keep the cortical outflow free from inhibition. This situation is clearly illustrated in our patient who reacted with intense fear and guilt after her last treatment and was by no means well. She had expressed her hostile attitudes clearly and had some insight at least generally into a "hostile unconscious." The fear of retaliation and guilt was then treated psychologically to offset a recurrence of renewed repressions, although some were encouraged.

To summarize this psychophysiological theory: Metrazol-induced convulsions may explode the diencephalon, opening up blocked pathways to the cerebral cortex from which verbal formulations and symbolic acts may be expressed, releasing at the same time repressed psychological content. Repetitions of such explosions may groove or facilitate a pathway of permanence through which aggressive and libidinal drives may proceed without excessive interference by inhibitory obstructions. The same effect has been reported in patients who have had very severe psychological explosions without metrazol, as in those who fail in suicide attempts by some violent physical means. The mechanism may be the same as that postulated for metrazol in that the psychological tension so created reaches a

quantity which is sufficient to break into the inhibited pathways. Permanency of this pathway can be furthered by reconditioning, psychologically, the cortex or ego to acceptance of the psychological content and thus not only is the depression lifted but a freer, more normal personality achieved.

Under this heading of anatomico-physiological theories we have speculated on two possibilities both involving a change in the dynamics between cortex (ego) and diencephalon (biological drives). Both indicate a concept of primary alteration of physiological status with concomitant change in psychological tension. Further research is needed to base these theories on firm factual ground. We hope that our speculations may stimulate such work and result in the abandonment of sterile interpretations.

For the large group of depressions metrazol is probably of great value. However, we should know full well on whom we employ this treatment and how it works, as well as the interplay between the metrazol itself and concomitant psychotherapy. Although there is danger that the treatment will be exploited, this is bound to be self-limited and we should not be deterred from using it in well indicated cases. In depressions convulsions induced by metrazol produce a psychosomatic alteration of a condition which is probably a psychosomatic process of inhibition and regression. This treatment thus need not be considered as a promise or a threat to any single group.

Bibliography

1. Bennett, A. E.: Convulsive (Pentamenthylenetetrazol) shock therapy in depressive psychoses. Preliminary report of results obtained in ten cases, Amer. J. med. Sci., *196:* 420, 1938. (Abstracted in Bull. Menninger Clinic, *2:* 97, 1938.)
2. Bennett, A. E.: Metrazol convulsive shock therapy in the affective psychoses; follow-up report of results obtained in 61 depressive and 9 manic cases, Amer. J. med. Sci., *198:* 695, 1939.
3. Cohen, L. H.: Therapeutic significance of fear in the metrazol treatment of schizophrenia, Amer. J. Psychiat., *95:* 1349, 1939.
4. Cottingham, F., and Gavigan, A. J.: Metrazol treatment of depressions, New Engl. J. Med., *220:* 990, 1939.
5. Cronick, C. H., Scherb, R. F., and Karnosh, L. J.: Modification of the manic-depressive cycle by metrazol, Dis. Nervous System, *1:* 10, 1940.
6. Davis, P. A., and Sulzbach, W.: Changes in the electroencephalogram during metrazol therapy, Arch. Neurol. Psychiat., *43:* 341, 1940.
7. Gleuck, B., and Ackerman, N. W.: Reactions and behavior of schizophrenic patients treated with metrazol and camphor, J. nerv. ment. Dis., *90:* 310, 1939.
8. Grinker, R. R., and Serota, H. M.: Studies on corticohypothalamic relations in the cat and man, J. Neurophysiol., *1:* 573, 1938.

8a. Grotjahn, M.: Psychiatric observations in a case of involutional melancholia treated with metrazol. Bull. Menninger Clinic, *3:* 122, 1939.

9. Lipschutz, L. S., Cavell, R. W., Leiser, R., Henko, E. N., and Ruskin, S. H.: Evaluation of therapeutic factors in pharmacologic shock, Amer. J. Psychiat. *96:* 347, 1939.
10. Low, A. and others: Metrazol shock treatment of "functional" psychoses, Arch. Neurol. Psychiat. *39:* 717, 1938.
11. Lyerly, J. G.: Prefrontal Lobotomy in Involutional Melancholia, J. Fla. Med. Ass. *25:* 225, 1938.
12. McFarland, R. A., and Goldstein, H.: Biochemistry of manic-depressive psychosis; Review, Amer. J. Psychiat., *96:* 21, 1939.
13. Menninger, William C.: Results with metrazol as an adjunct therapy in schizophrenia and depressions, Bull. Menninger Clinic., *2:* 129, 1938.
14. Moniz, Egas: Prefrontal leucotomy in the treatment of mental disorders, Amer. J. Psychiat., *93:* 1379, 1937.
15. Myerson, A.: The attitudes of neurologists, psychiatrists and psychologists toward psychoanalysis, Amer. J. Psychiat., *96:* 623, 1939.
16. Nissl, F.: Beitrage zur Frage nach der Beziehung zwischen Klinischen Nerven- und Geisteskrankheiten, Julius Springer, Berlin, 1914.
17. Notkin, J.: Epileptic manifestations in the group of schizophrenic and manic depressive psychoses, J. Nerv. ment. Dis., *69:* 494, 1929.
18. Steinberg, D. L., and Nierenberg, H. H.: Treatment of manic-depressive and involutional psychoses with metrazol (Pentamethylenetetrazol), Elgin State Hospital Papers, *3:* 39, 1939.
19. von Meduna, L., and Friedman, E.: Convulsive-irritative therapy of the psychoses; survey of more than 3,000 Cases, J. Amer. med. Ass., *112:* 501, 1939.
20. Wilson, D. C.: Results of shock therapy in the treatment of affective disorders, Amer. J. Psychiat., *96:* 673, 1939.
21. Young, R. H., and Young, G. A.: Treatment of the psychoses with induced hypoglycemia and convulsions, J. Amer. med. Ass., *112:* 496, 1939.
22. Zilboorg, G.: The fundamental conflict with psychoanalysis, Int. J. Psycho-Analysis, *20:* 480, 1939.

PSYCHOSOMATIC MEDICINE—VOL. II, NO. 2, APRIL, 1940

SEVERE ESOPHAGEAL SPASM

An Evaluation of Suggestion-Therapy as Determined by Means of the Esophagoscope

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IT IS VERY often difficult for the internist and surgeon, dealing as they do with tangible evidence of disease, to meet on common ground with the psychiatrist, who speaks in terms of the unreal and the imaginative, and, apparently without substantiating proof, refers to the psyche as a chief causative factor in illnesses which have all the appearances of being organic. And yet, many of the unproved psychiatric contentions may be correct.

In the case herewith reported, we found visual evidence of the changes in the size of the esophageal lumen resulting from situations which the patient merely imagined.

Case Report

A white male, aged 26, was referred to the thoracic surgical department complaining of vomiting and epigastric pain. The illness was of four-years duration, but at the start, the vomiting was only occasional, and not associated with nausea or pain. The condition gradually became worse, however, and now he regurgitates from 200 to 300 cc. of undigested food at least once a day.

Despite the absence of nausea, the patient can generally tell when he sits down to a meal whether or not he will be able to retain it. He has also noted that he can usually retain a full breakfast and any other meal if he lies down to rest a while before eating.

His weight decreased from 170 to 158 pounds since the beginning of the illness. He feels weak, and lacks vitality; and, though working in a hot climate, expresses a definite preference for cool weather.

During the past six or eight months he has been troubled with epigastric pain which is burning in character but not related to the taking of food. This pain often awakens him from sleep, and relief is had by taking a glass of water. Along with this recently acquired symptom, there is vertigo, headache, and blurring of vision; but never syncope. He has been more or less nervous all his life and ascribes the present trouble to this factor.

Except for apprehension and anxiety, the physical examination was normal. Blood pressure was 120/70. Hemoglobin and red cell count were normal.

X-Ray study with opaque meal showed a uniform narrowing of the entire esophagus.

Esophagoscopic examination: Nembutal, codeine, and morphine were used as preparatory medication. Ten per cent cocain was employed to anesthetize the pharynx and pyriform sinuses. In spite of these drugs, there was very little relaxation.

Using the #9 Jackson type esophagoscope I encountered the most marked esophageal spasm I have ever seen. None of the lumen was open and the spasm involved the entire esophagus.

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No portion of the esophagus escaped, but the region of the inferior constrictor of the pharynx and the cardiac end showed the most extreme degree of constriction.

Ordinarily the instrument can be slid either up or down the esophagus with great ease but, in this instance, at each point throughout its entire length, the esophagus clamped down so hard upon the esophagoscope that the procedure was a slow, difficult process, requiring considerable force to pass from the cervical to the cardiac end. Attempts at withdrawal were even more difficult than the introduction of the instrument. The esophageal muscles clasped the instrument tightly and would not let go. The withdrawal of the esophagoscope even as little as one cm. demanded considerable strength.

I had known in advance that this patient was extremely nervous and apprehensive, and that his home and economic environment had caused a tremendous emotional strain; but I did not see how this knowledge could in any way facilitate the esophagoscopic examination and treatment.

As the operative difficulties increased it occurred to me that here was an opportunity to determine whether the degree of esophageal spasm could be altered in any respect by the patient's mental outlook. Accordingly, while still looking down the esophagoscope, I suggested to the patient that it was very probable that we could arrange work for him which would bring social and economic security. To my utter amazement the spasm relaxed immediately and the esophagus opened to normal size.

It was very hard to believe that the suggestion of a pleasant environment alone could bring about this prompt favorable change. Was it not more likely that the relaxation was a mere coincidence?

To test this point, I then asked how he would like to think of a future with even greater poverty and insecurity than that in which he was now living. And promptly therewith, the spasm returned. I repeated this experiment several times and noted alternating spasm and relaxation, depending upon the emotional and functional response to the environment pictured.

Esophagoscopic examination is called for in these cases to exclude, diagnose, and treat organic diseases, and to permit mechanical dilatation of spastic areas but, if a cure is to be obtained, it is also imperative that causative emotional factors be searched for, and rehabilitory therapy instituted. A bright outlook and optimistic frame of mind on the part of the patient is decidedly more essential than frequent esophagoscopic dilatations in restoring health.

Summary

It was noted, on esophagoscopic examination, that the presence of esophogeal spasm or relaxation was determined by emotional factors.

Thoughts of insecurity and frustration brought about esophageal spasm; while suggestions of a pleasant and desirable environment caused esophageal relaxation.

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OBESITY IN CHILDHOOD: V. THE FAMILY FRAME OF OBESE CHILDREN*

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EVALUATION of the food intake (*1*) and energy expenditure (*2*) of a large group of obese children who were studied in this department during the last three years indicated that excessive eating and avoidance of muscular exercise represent the most obvious factors in the mechanism of a disturbed energy balance. These two, food intake and activity, are functions of the organism which are determined not alone by bodily need and capacity but by training and life experiences also.

The etiological significance of emotional disturbances in the development of obesity has repeatedly been reported. The pertinent literature was reviewed in a previous article (*1*). Increased appetite is considered an allied symptom of nervous tension and anxiety. Most authors limit themselves to the statement without probing into the origin of the interrelation. Levy (*4*), describing the behavior of a group of 33 obese boys whom he classified on the basis of fat distribution as "Fröhlich Syndrome," raises the question as to the contributing factors. He concluded that the submissive behavior which was prevalent in his group could not be explained by the early life history of the patients. The few subjects with aggressive behavior, however, revealed evidence in early life of determining environmental factors. Information on the background of only these few patients is included in his report.

Our own observations suggest that environmental factors conduce to the development of probably most cases of obesity. This statement does not imply that a certain environment in itself can produce obesity. Certain preliminary requirements, both in the environment and in the individual, have to be fulfilled before obesity becomes manifest. This interrelation between environment and constitution was illustrated in a previous article (*2*) by analogy with the phenomenon of resonance in acoustics. The innate structural properties of the organism were likened to the measureable physical characteristics of the resting string. The environment and its emotional significance were compared to the waves without which a sound is not produced. In order to become effective the sound waves must have a definite frequency which corresponds to the physical properties of the string. In other words, "environmental" factors, including the emotional milieu, are not something entirely "outside" the individual. The present article will deal with the environmental forces which contribute to the development of obese children. Our attempts to recognize common, if possible typical, features in the family constellation represent efforts to determine the "fre-

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quency of the waves," that is, the specific features of the dynamic environmental factors.

This study of the family has been approached from the angle of the parents, but it centers around the obese children, although their individual responses will not be included in this report. The title "family frame" was chosen to indicate this centralization of the investigation. The general background for several children may be similar in a family, but the particular "frame" may vary for each child. The attitude of each parent to each child is different, and each child responds in his own way to his surroundings. The information on other children has been included in so far as it serves to illustrate the situation of the patient. In our endeavor to demonstrate possible differences in the attitude of the family to other children the number of families with more than one child included in this study exceeds somewhat their proportion in the clinic population of obese children.

All information reported in this article is based on observations of overt behavior and expression of conscious reactions to persons and life situations. The aim of the study is to furnish a survey of the main trends in the family interrelationship in a large group of obese children. Such a surveying investigation may be compared to the results of a macroscopic anatomical examination which records the size and general distribution of lesions, leaving the further investigation and interpretation to the microscopic examination. More detailed and deeper probing insight into emotional processes, comparable to the histological examination, can only be gained from the analysis of unconscious psychic material. The assemblage of such information is a task beyond the scope of the present investigation. In giving this report we shall limit ourselves to simple descriptive statements, and shall refrain from theoretical discussion and interpretation of the accumulated material.

After a short description of the economic and living conditions of the families, the personal development of the parents will be discussed in respect to their background and mutual adjustment. Their attitude towards their children, particularly the obese children, will be presented from different aspects. The reaction of the parents to the coming of the child, his position in the fraternity and the size of the family will be dealt with in one part. The personal relationship of the parents to the obese child and their behavior towards other children will form another section. The parents' attitude towards problems of health, bodily maturation, obesity and food intake will be discussed in a separate part. In each of these sections a summarizing discussion will precede the report of observations in individual cases. Our purpose is to disclose possible similarities in the family frame of obese children and to contemplate the prevailing fundamental trends. The case histories are intended to record the wide variety of individual manifestations of these common features.

Description of Group

This report is based on an analysis of the family background of 40 obese children, 18 girls and 22 boys. They represent 25 per cent of the 160 obese children who are now under our observation. This smaller group is intended to be a cross section of the whole group. A comparison of the two groups as to the degree of overweight, the position of the child in the family, and the racial background is offered in Table I. Though the numerical relations between the different factors do not coincide entirely, it appears justified to con-

sider the 40 children as representative of the clinic population of obese children.

These particular families were selected on the basis of willingness and ability to cooperate in giving the information, though a number of them were uncooperative in the clinical treatment of their children. In the majority of the children not included in the report, more information than is customary for medical records was obtained on the reaction of the family to the child, and in many cases also on the personality and background of the parents. The case histories, however, are not complete, and the material is not included in the present report, as it would only serve to lengthen it. In no case was the information in contradiction to the material to be presented.

The descriptive data for the individual patients are presented in Table II and Tabie III. As to age, the figures generally refer to the time when the study was made, and not to the time of first observation. The youngest patient (case 19) was only two years and four months old when first seen, and the oldest girl (case 18) was 13 years old. In the few instances where marked changes in the attitude of the family towards the patient were observed, the description deals with the time of first observation; the ensuing development will be mentioned in the discussion of the individual patients.

TABLE I

	Subjects in Family Study						Total Group					
	Boys 22		Girls 18		Together 40		Boys 74		Girls 86		Together 160	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Degree of Obesity												
Moderate 25 to 40% overweight	9	41	2	11	11	27.5	35	47.5	31	36	66	41
Severe 40 to 70% overweight	9	41	12	67	21	52.5	33	44.5	43	50	76	48
Extreme 70 to 120% overweight	4	18	4	22	8	20	6	8	12	14	18	11
Position in Family												
Only	7	32	5	28	12	30	24	32	32	37	56	35
Oldest	7	32	3	17	10	25	18	24	14	16	32	20
Youngest	7	32	8	44	15	37	25	34	32	37	57	35
Between	1	4	2	11	3	8	7	10	8	10	15	10
Racial Background												
Jewish	13	60	11	61	24	60	42	57	42	49	84	52.5
North European	6	27	2	11	8	20	19	26	20	23	39	24
South European	2	9	2	11	4	10	8	11	9	11	17	11
American Negro	—	—	1	6	1	3	3	3	13	15	16	10
Mixed	1	4	2	11	3	7	2	3	2	2	4	2.5

The occurrence of obesity in parents and siblings of the patient is recorded in Table II, in some instances referring to obesity in the past. The absence of a mark indicates a slim figure; one plus sign stands for an abundant state of nutrition; increasing severity of obesity is denoted by two, three, or four plus signs. A genetic outline of each family was obtained. These detailed observations to be reported in a separate paper.

Accumulation of Information

In the beginning the information on the family and its reactions to the child

was obtained at the time of the patient's visit to the clinic from the accompanying parent, generally the mother. In nearly 50 per cent of the cases the father accompanied the patient on at least one visit, and his relation to the child could be observed; in some cases the father brought the child more frequently than the mother. Other relatives, generally members of the household, were also seen on such occasions. The information thus ob-

TABLE II

A—Girls

Number and Initial	Degree of Obesity	Racial Origin Country of Birth		Build of Parents		Build of Siblings	
		Father	Mother	Father	Mother	No.	No. Obese
1. Z.F.	Extreme	Jewish America	Jewish America			2	0
2. H.W.	Moderate	Jewish Russia	Jewish Russia		++	0	0
3. B.T.	Severe	Jewish Russia	Jewish England	+		1	1
4. F.P.	Severe	Jewish Russia	Jewish Russia	+	+++	3	1
5. E.B.	Severe	Jewish Russia	Jewish America			1	0
6. T.S.	Severe	Jewish Hungary	Jewish Russia	++		1	0
7. A.T.	Extreme	Italian Italy	Italian Italy	+++	++	3	1
8. A.Sch.	Severe	Jewish Russia	Jewish Russia		+++	0	0
9. K.F.	Severe	Irish America	Irish America	+++	++	1	0
10. D.Ko.	Severe	Jewish Russia	Jewish Russia		+++	3	2
11. L.S.	Severe	Jewish Russia	Jewish Russia	+++	++	3	2
12. A.C.	Severe	Negro America	Negro America	++	++	0	0
13. L.C.	Extreme	Jewish Poland	Jewish Poland	+++	+	2	1
14. D.Ka.	Severe	Jewish ?	Italian Italy			1	0
15. M.H.	Moderate	Hungarian Hungary	Jewish Hungary		+	2	0
16. J.F.	Severe	Jewish Russia	Jewish Russia	++	+++	1	1
17. E.C.	Severe	English America	English America	++	++	0	0
18. I.V.	Extreme	Hungarian Hungary	Polish America		++	0	0

TABLE II

B—Boys

Number and Initial	Degree of Obesity	Racial Origin Country of Birth		Build of Parents		Build of Siblings	
		Father	Mother	Father	Mother	No.	No. Obese
19. H.D.	Severe	Scotch Scotland	Irish Ireland			0	0
20. H.B.	Severe	Jewish Russia	Jewish America		+	1	0
21. L.B.	Moderate	Jewish Poland	Jewish Poland			0	0
22. J.S.	Severe	Jewish Poland	Jewish Poland		++	1	0
23. L.R.	Moderate	Jewish Russia	Jewish Poland	++	++	0	0
24. J.O'C.	Severe	Irish Ireland	Irish Ireland		+++	1	0
25. W.O'G.	Severe	Irish Ireland	Irish Ireland	+	+++	3	0
26. D.B.	Severe	Jewish Lithuania	Jewish Palestine			1	0
27. H.Pe.	Extreme	Spanish Cuba	Italian America		++++	1	0
28. St.F.	Moderate	Jewish Russia	Jewish Russia			1	1
29. F.B.	Moderate	Ger-Amer. America	Jewish Hungary	++		0	0
30. A.H.	Moderate	Jewish Russia	Jewish Russia			1	0
31. H.L.	Extreme	Jewish Russia	Jewish Russia	+	+	1	1
32. B.F.	Extreme	Jewish Russia	Jewish Russia		+++	1	1
33. A.Ha.	Moderate	Jewish America	Jewish America			1	0
34. H.M.	Severe	English America	English America	+	++	0	0
35. M.M.	Moderate	Jewish America	Jewish America			0	0
36. F.M.	Severe	Italian Italy	Italian Italy			1	0
37. St.Sp.	Moderate	Jewish Russia	Jewish America		+++	1	1
38. H.Pr.	Moderate	Jewish Russia	Jewish Russia		+++	0	0
39. J.P.	Severe	Irish America	Irish America		+	4	0
40. G.T.	Extreme	Irish America	Irish America		++++	1	0

TABLE III

A—Girls

Number and Initial	Age Years Months	Position in Family	Living Siblings Age Male	Living Siblings Age Female	Dead Siblings Male	Dead Siblings Female	Miscarriages	Admitted Abortions	Age of Parents at Patient's Birth Father	Age of Parents at Patient's Birth Mother
1. Z.F.	5	Youngest	—	2(21) (18)	—	—	—	—	38	36
Conception was an accident. An abortion was considered but the mother's father had died recently and there was no child in the family who bore his name. "I decided to have a little boy to name for my father." Both parents were "shocked" that it was another girl. Members of the father's family were critical and condemned the mother for having the child as they were dependent upon them for support.										
2. H.W.	6-6	Only	—	—	—	—	—	—	42	27
The child was conceived in the first month of marriage. The parents went at once to America. The mother blames the pregnancy for her inability to made an adjustment either to her marriage or to the new country. "Without the baby I could have done better." She does not want another child.										
3. B.T.	8	Youngest	1(16)	—	—	—	—	1-therapeutic	30	27
Both children of this family were accidental conceptions but they were accepted by the parents. Pernicious vomiting was present in all pregnancies and the one just previous to the patient was terminated therapeutically.										
4. F.P.	8-3	Youngest	1(22)	2(25) (18)	1(2) pneu.	—	—	Many	44	38
The father was ill at the time of conception and was hospitalized for a serious operation shortly after. The mother resented conceiving of a sick man. "I had to work in the store and I never got the time to go for an abortion like I always did before." The previous child had recently died at the age of 2, and the need to replace the child may have been a factor in her failure to find time for the abortion. But a girl baby did not replace the boy.										
5. E.B.	8-4	Oldest	1(3)	—	—	—	—	—	28	22
This mother had "asthma" during pregnancy. Ten months after birth of the patient she had a "complete nervous break-down," probably of a psychotic nature. After the birth of the second child she was in a deep coma (hysterical?) for two days.										
6. T.S.	8-6	Oldest	—	1(7)	—	—	1	—	27	22
The first pregnancy resulted in a miscarriage and the mother was apprehensive that she could not have children. Her need for children to help replace her family in Europe and contribute to her security here was great. There is no expressed rejection.										
7. A.T.	8-6	Between	1(15)	2(13) (5)	—	—	—	—	36	32
Conception was accidental and the mother did not want the child. But her religious convictions prevented an abortion. The child was born when the mother was away from her home with the two older children and she suffered from medical neglect. Her resentment against this was reflected upon the child.										
8. A.Sch.	9	Only	—	—	—	—	—	—	?	37
The parents had been married for eleven years. They did not want children. The mother claims that she did not consider that she was pregnant until several months had elapsed. "And then it was too late to do anything. But of course I wouldn't do a thing like that anyway." She did not make arrangements for her confinement and was sent from one hospital to the other in the delivery night.										

TABLE III—*Continued*

Number and Initial	Age Years Months	Position in Family	Living Siblings Age Male	Living Siblings Age Female	Dead Siblings Male	Dead Siblings Female	Miscarriages	Admitted Abortions	Age of Parents at Patient's Birth Father	Age of Parents at Patient's Birth Mother
9. K.F.	9-6	Youngest	1(11)	—	—	—	—	—	21	20
The father began drinking and became abusive after conception. He did not want another child. The marriage was dissolved. "I didn't know about having anything done, but then I don't believe in that sort of thing anyway."										
10. D.Ko.	11-6	Between	3(22) (19) (9)	—	1 (4 mo.)	1 (inf.)	—	—	30	30
There were two previous children and the mother did not wish more. She had established her own business and was educating herself. The father refused to permit an abortion, both because he wanted children and for fear of the mother's life. Our patient had a twin brother who died in infancy and it is the mother's expressed regret that the girl lived and the boy died.										
11. L.S.	11-6	Youngest	—	2(25) (22)	—	1(18)	3	—	35	35
"I did everything I knew to get rid of this baby but nothing worked." She discontinued her attempts when she heard of the death of another woman following abortion. Concerning the sex of the child, the fourth girl, she says: "We never had words that she was not a boy."										
12. A.C.	11-6	Only	—	—	—	—	—	2	38	30
The mother wanted a girl "If I had another child I would prefer a girl again"—the father wanted a boy. The parents felt they could not afford more children. There were 2 induced abortions following the patient.										
13. L.C.	12-1	Oldest	—	2(9) (4)	2 (birth)	—	1	—	24	30
The two first children died at birth and the mother wanted to have a living child. "But if they had lived I would not have needed to have this one."										
14. D.Ka.	12-6	Youngest	1(16)	—	—	—	2	—	?	28
This mother wanted a large family. Due to an injury at birth of the first child, she had two miscarriages. Following an operation she was able to have this child.										
15. M.H.	12-6	Youngest	1(15)	1(17)	—	—	—	Many	35	27
"I did not know I was pregnant with this child until too late to have an abortion"—was one of the first remarks the mother made about the child. She blamed herself for her carelessness of observation. There were induced abortions both preceding and following this child.										
16. J.F.	13-8	Youngest	1(17)	—	—	—	—	Several	32	30
This mother is very foreign and expresses herself poorly. All pregnancies following the patient terminated in induced abortions.										
17. E.C.	14	Only	—	—	—	—	—	—	33	33
"I felt that I ought to have a child"—motivated by a social consciousness. Today she expresses the sentiment that she should never have had a child, that could she live her life again she would not have a child.										
18. I.V.	15-4	Only	—	—	—	—	—	—	26	18
The conception was accidental shortly after marriage. She rejected motherhood as a part of the pattern of the "old folks." And she displays no sense of mature maternal responsibility.										

TABLE III

B—Boys

Number and Initial	Age Years Months	Position in Family	Living Siblings Age Male	Living Siblings Age Female	Dead Siblings Male	Dead Siblings Female	Miscarriages	Admitted Abortions	Age of Parents at Patient's Birth Father	Age of Parents at Patient's Birth Mother
19. H.D.	3-8	Only	—	—	—	—	—	—	30	27
			Conception occurred in first month of marriage. Parents worked as household couple and lost their positions as a result. Father bitter and resentful and began to drink excessively. The mother wanted the child.							
20. H.B.	6	Oldest	1(3)	—	—	—	—	—	28	23
			"We were so happy to have a child." This was a planned pregnancy and there is no evidence of conscious rejection on the part of either parent.							
21. L.B.	6-8	Only	—	—	—	—	—	—	27	27
			The parents wanted a child but the mother wanted only a girl. "Girls are better companions." Financial circumstances in the family became acute during the pregnancy. They do not plan another child.							
22. J.S.	8	Oldest	1(4)	—	1 (birth)	—	—	—	31	25
			The mother says: "The idea of marriage is to have children" but she has no mature concept of the responsibilities of parenthood. The first child died at birth. The second child, the patient, was wanted by the mother "to make good for the child that died." The dead child and the patient were given the same name, that of the mother's father who had recently died. There is conflict and confusion over the naming in the mother.							
23. L.R.	8-2	Only	—	—	—	—	—	—	36	32
			The parents had been married for 12 years and the mother had several operations before she conceived this child. She desired to have a child but wanted a girl. "A girl stays close to you." She still rejects the sex of the child.							
24. J.O'C.	8-4	Oldest	—	1(7)	—	—	—	—	28	32
			The mother was 32 at marriage. She planned to have two children as soon as possible. The pregnancy with the patient was a happy time for her and made for real companionship with her husband.							
25. W.O'G.	8-10	Oldest	3(7) (4)(2)	—	—	—	1	—	29	28
			"We decided that we would have children at once after marriage." First pregnancy ended in a miscarriage. Mother had deep sense of guilt over this. Patient was the second pregnancy. The Church and her sisters expected her to have children and she feared their disapproval if she did not.							
26. D.B.	10	Oldest	—	1(5)	1 (birth)	—	—	—	28	26
			The first baby died following a premature birth and the mother felt that she had been responsible for the death. She conceived the second child two months later despite medical advice that she wait for a year. She said that she wanted to justify the death of the first. She talks much of this dead baby when she talks of the patient.							
27. H.Pe.	10-6	Youngest	1(15)	—	—	1 (birth)	—	2	38	25
			The first baby died at birth. This was a girl. The second child was a boy and acceptable to the mother. The patient was the third. The mother wanted a girl in order to make her family complete and to fill the place of the dead baby for whom she had grieved.							

TABLE III—*Continued*

Number and Initial	Age Years Months	Position in Family	Living Siblings Age Male	Living Siblings Age Female	Dead Siblings Male	Dead Siblings Female	Miscarriages	Admitted Abortions	Age of Parents at Patient's Birth Father	Age of Parents at Patient's Birth Mother
28. St.F.	10-6	Youngest	1(17)	—	—	—	—	—	32	30
The patient's birth coincided with serious financial reverses. "All our troubles came at once". The mother wanted a girl and denied the sex of the baby—"He looked just like a girl"—a compensation for her at that time.										
29. F.B.	10-8	Only	—	—	—	—	—	—	29	29
The mother wanted to have children but had no concept of maternal responsibility. She says that had she realized the problems of motherhood that she would never have had this child and is thankful that there are no other children.										
30. A.Hi.	11	Youngest	—	1(23)	—	—	—	Many	34	29
This mother had four abortions after her first child and was warned by her mother that another abortion might be fatal to her. "So I decided to have a little girl to be a sister to my other girl." She chose the child in preference to a risk of her life. But she never considered that she would have a male child and has never reconciled herself to this.										
31. H.L.	11	Oldest	1(9)	—	—	—	—	—	27	25
The parents wanted a child, but the mother had wished for a girl, because "you don't lose them when they get married." She did not want a boy and specially not a red-haired one like her brother.										
32. B.F.	11	Youngest ("Only" After death of brother a year ago)	—	—	1(17)	—	1	—	31	28
This mother is completely wrapped up in her grief over the death of her oldest son. She does not express her reaction toward the pregnancy with the patient. He was 7 years younger than the brother and there was one miscarriage between the two children.										
33. A.Ha.	11-5	Youngest	—	1(14)	—	—	—	3	34	28
The mother says that she had been advised to have an operation for fibroids of the uterus before the patient was conceived; that she refused the operation and told the doctors that she was willing to take the chance with the risk of her life. She had several abortions preceding the patient and one following his birth. Hysterectomy was performed 4 years later. She grossly exaggerates the difficulties of the operation, speaking of "32 tumors" and that "the doctors thought that the boy could not be normal when I was in such a condition." According to the hospital record it was a typical operation with uneventful recovery.										
34. H.M.	11-6	Only	—	—	—	—	—	—	32	28
The mother displays unusual matter-of-factness about her child. "We saved for seven years to have a baby and never saved enough to have another one." She displayed a real rejection of the baby, his appearance and health while in the hospital. "He was such a queer, wizened looking little thing." (The patient suffers from congenital ichthiosis.)										
35. M.M.	12	Only	—	—	—	—	—	—	26	24
Reaction to this child not revealed. Has rejected the idea of another child and says that she often regrets that she ever had this one.										

TABLE III—*Continued*

Number and Initial	Age Years Months	Position in Family	Living Siblings Age Male	Living Siblings Age Female	Dead Siblings Male	Dead Siblings Female	Miscarriages	Admitted Abortions	Age of Parents at Patient's Birth Father	Age of Parents at Patient's Birth Mother
36. F.M.	12-6	Oldest	—	1(9)	—	—	—	1	28	24
First pregnancy terminated in what the mother termed a "criminal" abortion. The patient was born one year later. He was a wanted child and the mother hoped for a boy "to satisfy the father." She was upset during the pregnancy, vomited for 3 months and cried a good deal because her husband gambled and was away from home most of the time. After the child was born he changed and he was "just crazy about the boy."										
37. St.S.	13	Youngest	1(17)	—	—	—	—	—	32	30
This mother says that her only reason for having children was because of a sense of responsibility to her husband's parents. There are no other paternal grandchildren. Her own mother, with whom she lived, was seriously ill when the patient was born. She resented that this birth interfered with her contribution to her mother. "Any other time would have been a better time for him to be born."										
38. H.Pr.	13	Only	—	—	—	—	—	—	32	32
Neither parent wanted a child. "Our idea of marriage was to live together in a furnished room and work." Mother claims that she did not recognize the pregnancy until the fifth month, so foreign to her was the idea of a baby. "Then it was too late to do anything."										
39. J.P.	13-6	Between	2(15) (14)	2(9) (7)	—	1 (inf.)	—	—	28	25
The patient was the third baby, all boys, and the mother's hope each time was for a girl. The following child was a girl who died after a few months. Thus the patient "was the baby twice."										
40. G.T.	13-6	Youngest	—	1(16)	—	—	—	—	30	29
The mother had a position and wished to work. With one child she could do this. The second child, the patient, forced her to devote herself entirely to her home. She states that she regrets ever having either child, but that she had wanted another girl whom she could name for her mother.										

tained represented various viewpoints and gave a lively but incomplete picture of the family's attitude towards the obese child. Conditions in a busy pediatric clinic do not offer a favorable setting for a study of the emotional development. Quieter and more relaxed surroundings are essential for obtaining information of a more intimate nature.

The incomplete histories were supplemented in special interviews with the parents and other relatives. In most families at least two visits were made to the home. One was planned for an hour when the child would be in school. A second visit was made when the child was at home, preferably at lunch time. No appointments were made, as it was felt that more natural observations could be obtained when no special preparations had been made. In addition, the parents were requested to come to the clinic without the patient for special interviews, which varied in number, depending on the individual case.

All mothers in the group cooperated with this plan. But the fathers were found to be singularly uncooperative. Only a few came for the special appointments, which were arranged with full consideration for their working

hours. Appointments were frequently broken with no explanation. In many families, refusal to make appointments was encountered, sometimes because the father disapproved of the study and treatment of the child, or because the parental relationship was of such a nature that the mothers would not arrange an interview. The attitude of the fathers towards the child and the obesity had frequently been expressed at the time of the regular visits to the clinic. But this report is incomplete with regard to the background of the fathers, and their version of the marital relation.

The plan of interview was one of natural conversation, with the minimum of formal questions necessary to insure completeness and uniformity of the information. On the basis of the preliminary observations, an outline was sketched which covered those aspects of family life which seemed to be of importance in the obesity problem. Little writing was done in the course of the interview, as freedom of expression was frequently curtailed when recording was introduced. Information and observations were written down following the interview. When important aspects had been left untouched, the conversation was directed towards them at the next interview.

Inquiring into the incidence of obesity in other members of the family frequently opened the interview and led naturally to discussion of other members of the family, with varying emphasis upon certain individuals. Questions concerning the early development of the children revealed much more than the specific information, namely, the response of the home to the growth and maturation of the child. An inquiry as to the age at which the child was weaned usually provoked a detailed account of feeding attitudes. A question in respect to the health of the mother during pregnancy led in almost all cases to a revelation of the attitude of the family towards the expected new member. Most of the parents were foreign born, and questions concerning the old country and experiences in the new homeland stimulated expression of expectations and disappointments in earlier life.

The emotional changes of the person being interviewed, such as blushing, paling, sudden blocking, change in voice and posture, were observed, and the conversation was directed to a discussion of the subject which seemed to provoke such changes, though not always during the same interview. The cooperation of two different observers proved of value in this respect. The interviews were conducted apparently quite independently and information which was withheld on one occasion was offered freely and without embarrassment to the other interviewer at some later time. This duplication in obtaining the material under different circumstances resulted in a greater degree of completeness, and served at the same time as a check on the reliability of the information and on the validity of our observations and interpretations of the findings. Discrepancies in the information were checked and corrected so far as they related to actual figures and events. Differences and contradictions in reference to other people or individual opinions are included in this report since they reveal essential aspects of the attitude of the person giving the information, frequently exposing a marked ambivalence in the personal relationships.

Economic and Living Conditions

The economic level of these families was low as may be expected in a group of clinic patients. Twelve families were dependent on public relief, seven were supported entirely or in part by rela-

tives. The remaining twenty-one families were self-supporting at the time of investigation. The income in all families was marginal. A few had been in better economic circumstances formerly, and in several others there was a previous history of social relief.

The condition of the homes was surprisingly good and above expectation in a low income group. None of the families lived in a slum neighborhood. In only four homes was the general effect one of poverty and need. Good taste expressed itself in the arrangement and furnishing of the apartments. In general the care given to the environment was excellent. Growing plants were found in almost every home. Only a few homes were drab and poorly kept; one was repulsively dirty. The patient coming from this home was so unkempt and filthy when she came to the clinic for the first visit that examination was postponed until she had had a bath (the apartment had a bathroom).

In these cleverly planned and well-kept apartments there was little that bespoke the presence of a child. The atmosphere was an expression of the mother's desire for comfortable living. In the study of the activities of obese children (*2*) it was noted how few showed indication of creative self-expression. This may be related in some degree to the lack of space reserved for the child. In some instances the apartment was given over to the protection and preservation of furniture that spoke of better days. The children were nagged constantly against touching the family possessions and were relegated to a narrow corner for play (cases 15 and 23). In other cases the mother's desire for orderliness and proper appearance prevented the home from being a place for creative work by the child. "As I can't be all the time cleaning up after him" (cases 22 and 27). Sometimes space was sacrificed to a good neighborhood, partly with the motive of having the children attend better schools and mingle with acceptable and desirable schoolmates (case 33). In other cases it was a matter of pretence and keeping up of appearances. "I must think of what my friends would say if we had to move away from here. It does not matter about space for us. A child can sleep anywhere" (case 26).

Freedom of movement and expression was further curtailed by the presence of relatives in the household. In ten instances one or both grandparents were living in the household. In two of these families (cases 7 and 26) the parents had never had a household separate from that of the maternal family. In two other cases (cases 1 and 14) the family had returned to the home of the grandparents. In three more families (cases 13, 17, and 37) one or two grandparents had been living in the household when the children were younger. In all cases the presence of relatives had led to tension and friction. On the one hand the children were deprived of needed space, and nagged and hushed constantly. On the other hand central guidance was lacking, and the children were exposed to "spoiling" and to controversies and discussions over their rearing. In the three families who sublet a room in the apartment the presence of the roomer did not enter in the life of the family except for crowding the available space.

The social contacts and cultural interests of the family generally did not reach beyond the narrowest family limits. The greater number of the parents were foreign born without education or social advantages, and the struggle to find a place for themselves in a new country exhausted their energies. The mothers were generally fully occupied with the care of the home and the preparation of meals.

Lack of time was frequently given as a reason why clinic attendance was discontinued. Many served three hot meals a day, expressing the opinion that the child needed this.

In most families the amount spent for food was disproportionately large as compared to money available for other needs of the child, such as clothing or tools and equipment for play and athletics. In no case was any complaint voiced against the cost of food, as long as the money was spent to satisfy the demands of the child for large meals and extra food such as candy and ice cream. The high cost of food was emphasized as soon as dietary changes were recommended thereby reducing the bulk of the food. We made efforts to teach economic ways of shopping so that the new diet could be provided at the same or even lower price than the previous meals, generally without much success.

In contrast to this willingness to spend a large part of the available money on food, there was almost universal complaint about the cost of oversize clothes, a motivating factor in some cases in trying to reduce the size of the child. Some children, but more often the parents, were poorly and inadequately dressed. In one of the poorest families (case 38) it was observed that the noon meal of the child consisted of lamb chops, two fresh vegetables, a baked potato, a fruit cup and a glass of milk. And a hot meal was planned for the evening. Neither the parents nor the child were dressed adequately for mid-winter weather, and there was constant complaining about the cost of medical care (reduced clinic fee). In some instances it was difficult to elicit an honest picture of the food intake. One mother (case 8) who wished to stress her poverty, said that they were lucky if they had "a little crust of bread" to eat, but when a call was made at lunch time, she had four pots cooking, and there were two bowls of fruit in the kitchen.

The marginal economic level of these families seemed to be a contributing factor in the overfeeding. Abundance of food represented the one contribution to luxury which the mother could make and which gave a certain sense of affluence. One mother (case 17) who was entirely dependent upon relatives for support, stated that the time would never come when she would economize on her table. "We always have had the best to eat, and we always will." Many of the parents had experienced poverty and cruel hunger in their own childhood. When economic security was missing or again lost a larger food intake served also the purpose of combatting anxiety. In a number of cases the onset of obesity, sometimes in both the patient and one of the parents, coincided with a reversal of the financial conditions.

1. *Z.F.* The family moved into the home of the maternal grandmother three years ago, after the death of the grandfather.
7. *A.T.* This family never had a home apart from the maternal family.
8. *A.Sch.* The mother rents furnished rooms to men, and avoids giving information on this point. The Home Relief social worker reports that the present living arrangements cannot be considered as good for a pre-adolescent girl.
9. *K.F.* The children are living with a maternal great-aunt and uncle who run a rooming house.
10. *D.Ko.* The family keeps aloof from the neighborhood, which is below their level.
12. *A.C.* The mother and her older sister have lived together since coming to New York, and continued their joint household after their marriages.
13. *L.C.* A sister of the mother, eight years her senior, lives near by and always exerted a great influence on the

household. The maternal grandparents lived with the family until the patient was eight years old.

14. *D.Ka.* The mother and her children live with the grandmother. An uncle lives in the same apartment, and many other relatives in the neighborhood.
15. *M.H.* The mother and a brother of the mother live in the same apartment. The grandmother is a paranoiac old woman who possesses beautiful living room furniture which she does not permit anybody to touch or to sit on. Thus she occupies the best room of the apartment, which the children are not allowed to enter.
17. *E.C.* The maternal grandfather lived with the family until his death, when the patient was four years old.
20. *H.B.* The father's mother has always lived in the household, and a brother of the father did for the first five years of the marriage.
23. *L.R.* The maternal grandmother lives in the household. The home is filled with fine furniture which the child is not allowed to touch.
26. *D.B.* This family never had a home separate from the mother's parents. They are living in an inadequately small apartment in pretentious surroundings.
31. *H.L.* The family has a candy store in a poor section, which the mother and children consider inferior. Living quarters are inadequate in back of the store.
33. *A.H.* Adequate living space was sacrificed for a good neighborhood.
35. *M.M.* The mother's mother has always lived in the household.
36. *F.M.* The maternal grandmother has always lived in the household.
37. *St.Sp.* The father demanded, after eight years of marriage, to have a home of their own, separate from his wife's parents.
38. *H.Pr.* The mother has raised a rubber plant which she acquired just before the patient was born. This plant has grown to such dimensions that it crowds the family out of the living room, which is also the bedroom for the patient.

Parents in Relation to Their Background

The purpose of the inquiry into the background of the parents had been to understand and appraise the influence which had molded their personal development, their attitude to their life experiences, and their adjustment to the present situation. The information concerning the early history of the fathers is incomplete because so many of them failed to cooperate and did not come for special interviews. However, in some cases the uncooperative fathers were seen at the clinic or at home and a general impression of their personal appearance and development was gained. In combination with the information given by other members of the family, in most instances by their wives, the more general observations are included in this section.

Ten of the fathers were American born and 30 were foreign born. The countries of origin are listed in Table II. In ten cases no further information was obtained. Of the other 30 fathers 17 were described as lacking in drive, ambition and initiative. They were unable to provide adequate financial security or a social status comparable to that of their own parents or of other members of their families. It seems probable that this circumstance may account for their unwillingness to be interviewed. Three of them (cases 9, 18, and 19) had become alcoholic at least temporarily. Others placidly accepted being supported by their families or their wife's relatives. Some needed the assistance and the intercession of their wives to secure and keep their positions. Even the men who were capable and reliable in their work frequently gave the impression of being weak or unaggressive persons. Only five of the 40 fathers appeared to be proud, secure, and self-reliant men. Two of them (cases 24 and 34), having been reared

on farms, felt misplaced in the city and without adequate outlets for their energies.

In cases where the life history was obtained from the fathers themselves they frequently spoke with bitterness and resentment of their experiences. They felt defeated by circumstances which had prevented them from progress and positive achievements. None of them gave the impression of having actively entered the struggle for success. Their complaints and resignation indicated a fundamentally passive attitude. Life had not granted them what they had hoped for; there was no use trying again.

In all cases where an attitude towards their parental home and background was expressed it was that of a strong bond. Some exhibited persistent filial admiration (cases 20, 25, and 40) in one instance even bestowing the position of head of the household on the mother (case 20). Others showed unremitting embitterment against the difficulties and conflicts precipitated by dominating parents (cases 15, 31, and 37).

The information on the early life of the mothers and their response to it is much more abundant than that of the fathers. Most women were talkative and verbose, and all of them welcomed the opportunity to talk about themselves. This urge to direct the conversation and attention to themselves sometimes made it difficult to hold them to an objective discussion of other members of the family and the family interrelationship. In a few instances the mothers were so preoccupied with their personal problems that they did not give satisfactory information on other aspects.

The outstanding impression of the personality of the mothers as reflected in these conversations was an overt display of self-pity. They spoke of themselves as sick, unhappy and misunderstood women, seeking an expression of sympathy for themselves and their misfortunes. Only a few failed to focus all attention upon the frustration and disappointments of their lives. And only one mother (case 3) described her childhood as normal and happy. One mother (case 20) was conspicuous in her failure to display any emotion or to express any former reactions. This blocking of her feelings stood in marked contrast to the tribulations of her early life. No attempt was made to uncover her repressed emotional reactions as it was felt that her impassivity constituted her defense against her true responses and that this safeguard should not be broken down until constructive psychotherapeutic help could be offered.

Another common feature in almost all cases expressed itself in a definite lack of sincerity, a tendency to hide and cover up events, especially those which might reflect unfavorably upon them in their rôles as mothers. This factor will only be mentioned in those cases where the information was obviously fantastic, contradictory and confused. In a few cases secretiveness may possibly be explained on the basis that the mothers mistook our investigation for an inquiry into the financial resources of the family for the registrar's office. Cases in which hiding of funds apparently determined falsified statements were not included. The lack of uprightness, in spite of willingness to cooperate and the profuse flow of words seemed to reflect a character trait probably allied to their inability to perceive life situations in a realistic view, a factor which will be discussed later in this section.

Most of the women had undergone a life of great hardship, cruel poverty, and bitter disappointment. Fourteen of them were born in America, several in rural districts, and living in New York City represented a problem of adjust-

ment. Twenty-six were foreign born. The countries of their origin are reported in Table II. Twelve of these mothers had immigrated alone to America between the ages of 10 and 18 years. Some followed the example of relatives, expecting to find help and support, a hope which remained frequently unfulfilled. Three of the twelve were Irish girls who went into domestic service. Nine were Jewish girls escaping from the persecution and misery in Russia and Poland. They arrived with high expectations of education and advancement, but without training or funds, and drifted perforce into sweat shops where they received little financial reward and even less opportunity for education and personal development. Many suffered from intense homesickness. In a few instances the mother or parents joined their daughters later, and lived in the same household, a situation which provoked friction in all instances. Some girls contributed part of their meagre earnings to the support of their families in Europe, considering this their duty, and harshly blaming their sisters who did not have the urge to make such sacrifices.

Two mothers (cases 16 and 21) had come alone to America when young adolescents, to join their fathers. Both related with bitterness how they were exploited in manual work and how their earnings were used for others, leaving them with no reward or compensation. In other instances the mothers of our patients had immigrated together with their families. They also felt that they had been overburdened with enforced contributions to the family budget and too large a share in the household chores.

Still greater deprivations and misery had been experienced by those women who were separated from their parents when young children. In two instances (cases 21 and 22) the fathers had emigrated to America to prepare a new home for their families. The World War prevented their wives and children from following them, and they endured the misery of the war years in Poland. In one instance (case 21) the mother was killed by soldiers, leaving her only daughter of 11 years without a home or support. When the girl finally joined her father she found a new family, a stepmother and small children, and her assistance and contribution to the household were needed. In another instance (case 7) the mother had been left in Italy as a child of two when her parents departed for America. She was nine when she came alone to this country to join them. She wept when she recounted this experience. The feeling "I did not even know my mother" had remained as painful and distressing as during childhood.

Other mothers also traced the difficulties in life to having been reared in broken homes and having missed one parent during childhood. Two women (cases 5 and 9) reported that they had never known their fathers. Both felt that to each child belongs the right to know his father, but both reared their own children apart from the fathers. Another mother (case 34) refused discussion of her early life. She was visibly disturbed when questioned and mentioned only that she never had a real home. In other instances the death of the mothers when the daughters were small children (cases 20 and 24) or the death of the fathers (cases 27 and 39) had deprived these women of security and affection at an early age and had imposed upon them responsibilities beyond their capacities.

Dissimilar as the circumstances which caused the adversities of these women appear to be, they have close resemblance in several aspects. Excessive demands and the need to con-

tribute to their own and others' support had been forced upon them at an early age, before they had reached sufficient strength, inner security and self-reliance. All of them reacted to these demands with resentment and the feeling of having been exploited without reward, and of having been thwarted in their education and personal development.

The women whose outer life histories failed to disclose such striking evidence of suffering and hardship expressed similar reactions in their acrimonious and reproachful references to their background. It seems to us that common factors in the background of these mothers of obese children can be found not only in the actual events of their lives, but even more important aspects are reflected in their responses to them, in their self-pitying attitude towards the past. Resentful submissiveness, incessant preoccupation with their misfortunes and condemnation of others for their frustration manifested itself in their words as well as their behavior.

The animosity and self-pity expressed by a woman who felt her true life had been sacrificed to convention and tradition (case 17), or by those who complained that they had been cheated out of a normal childhood by the abusive behavior of their parents (cases 15 and 31) differed little from the reactions of the previously mentioned women who were bitter and revengeful because they had been exploited in physical labor. They all felt that they had been thrown upon their own resources and had been deprived of affection and security too early in life. They continued to feel sorry for themselves, and to resent the demands made upon them. Few of them obtained satisfaction from their present life situation. The ordinary contributions of a home maker and mother were rejected as a troublesome and unwanted burden. It is as if they had retained the same outlook on life and its responsibilities which they had at the time when demands were first made upon them, and as if they had not grown and matured beyond this stage. In no individual had the experiences of her life stimulated the development of a mature, vigorous, and secure personality. Almost all were insecure in their social contacts, and limited themselves to the narrowest circle of their family. They were afraid of a progressing world which called for adjustment and adaptability. Some had escaped into a static world of fantasy devoid of responsibilities, and they were still dreaming of the careers which they said they had sacrificed to their families. Two (cases 13 and 29) claimed successes as movie actresses. Several had made real efforts and had experienced some success in the struggle to escape the drudgery of their lives. Some had preserved their vitality despite many defeats, and worked for the support of their families, sometimes without assistance from their husbands. Others indulged in vague and fantastic schemes of future success, expecting satisfaction only from activity outside the realm of their homes. They all blamed their frustration and failures upon their families and the existing obligations. Their dissatisfaction and hostility manifested itself in endless complaints, exacting impatience, and aggressive irritability.

The inability of the mothers to detach themselves from the emotional tie to their parents signified another aspect of their stagnant attitude towards their early lives. Even the harsh condemnations displayed in the words and behavior of some women manifested in their very persistence a basic incompetence to free themselves from their former experiences of affection and hate, and from the influence of their parents. Two women (cases 27 and 40)

were so enraged at the re-marriage of the surviving parent, in the one case of the father and in the other of the mother, that they left the parental home, at the age of 14 years, and obstinately refused ever to see their families again. The exploitation and excessive demands which were so bitterly bemoaned indicated often self-imposed burdens, the compelling urge to contribute to their parents' support and to sacrifice their own comfort and independence. Two women (cases 7 and 26) had never considered having a home apart from their parents, and suffered from anxiety if separated. Even the mother whom we consider the most mature woman in this group (case 39) dissolved her own household, although she had three young children, and returned to her mother's home for more than a year, during a period of emotional stress. In other instances the life in the household of the parents was so trying and full of unhappiness that a separation of the families became necessary, not without marked feelings of guilt on the part of the daughters, the mothers of our patients. The frequency with which grandparents had been living in the same household has been recorded in the previous section. It is probable that the information was not obtained in all cases and that the actual incidence is even higher. Even if the grandparents lived separately, or after they had died, many of our mothers were unable to dissolve their emotional attachment. They continued to be guided in their actions by the need of approval from their parents, or felt guilty if they dared to follow their own judgment. Some women were aware of their conflicting attitude. Their impotence to break these ties and to live their own lives filled them with bitterness. One woman gave expression to the confusion in her loyalties by saying that she sometimes felt that she was holding out one hand to her parents and brothers and the other to her husband and children; that she was not wholly a part of either and that any attention that she gave to one was at the expense of the other.

This prolonged attachment to the parents appeared to be linked with the complaints of not having had a real childhood. It is as if they continued to search for some fantastic "normal" and carefree childhood and hence were incapable of going forward towards emotional maturity, and of accepting adult responsibilities without self-pity and complaint. In their impeded emotional development and in their frustrated longing for a happier childhood, which in turn provokes the desire to create this Utopian childhood for their children (actually for themselves) may be sought one source of their attitude and reaction towards their children.

1. *Z.F.* The father is the youngest of five children. "He is the unsuccessful one of my children," says his mother, who resents the presence of his family in her overcrowded apartment.

   The mother is the third child and first girl in a family of eight. She avoids discussion of her early life except to recount her adolescent popularity. "I never bothered with my family; I was one for having a good time." But at 42 years she displays a strong tie to her mother, which supercedes all other personal relationships. She is an immature and unreliable women who covers up the real issues and facts in her life, and refuses to face realities, just as she blondines her hair and covers her wrinkles with gaudy make-up.
2. *H.W.* The father was the youngest of four siblings. He came to America as a young man but never succeeded in raising his economic level above marginal or dependent. He returned to Europe at 43 to marry a girl whom his sister had selected.

   The mother is ten years younger than her only brother. She says that

she was an unhappy, little, fat girl without friends and a life centered about the small store of her parents and devoid of any home atmosphere. She suffered after her marriage from intense longing to be with her mother, but found no consolation when she returned to Europe to stay with her parents. She is a weary and resigned woman, full of remorse and self-pity, and unable to give herself to her family and go forward with them.

3. *B.T.* The father grew up in poverty as the fourth in a fraternity of seven children. He is the least successful member of his family and sensitive to criticism.

   The mother was the oldest of five children. She was three years old when her parents came from England. She describes a normal childhood and accepts her responsibilities now without complaints.

4. *F.P.* The father was one of five children. He does not want to talk of his family. His mother is reported to have been psychotic.

   The mother was the youngest of three children. She came alone to America at 16 years of age. She dreamed of a life of ease and luxury here, but found only hardships and disappointments. The responsibilities of a family deprived her of the aspired opportunities for personal development. She is resentful and unresponsive and filled with self-pity, which extends to personal neglect.

5. *E.B.* The father was not seen. The mother feels that he lacks initiative to educate and "better" himself. He is foreign born and was never able to provide adequate financial security or social status.

   The mother was the youngest of five sisters, "the youngest and the least wanted." The parents separated when she was two years old "and I grew up to know only hatred for my father and a life of cruel poverty." She feels that her mother has lived in vain. She herself managed to get a college education and claims that she had a well-paid position before marriage. She is an unreliable, extremely self-centered woman who has been diagnosed as psychoneurotic. She consistently refuses treatment. She is verbose, and indulges in talking of her sufferings, finding no positive force in her life, and rejects almost in toto everything she has. In her grief for herself and cruelty to her children she displays a serious combination of masochistic and sadistic traits.

6. *Th.Sk.* The father was the oldest of three siblings. He came to America alone at about 17 years. He felt lost and lonely here but has been able to make an adequate adjustment both in the economic and personal sphere.

   The mother, the oldest of four children, was 15 when she came alone to America. She went to live with an aunt whom she had never seen. She was homesick here, and still suffers from periods of acute depression, especially following a letter from home. All of her earnings were sent back to her family "but I could never earn enough so that I could send enough to meet their needs." The fact that she no longer is able to send money "home" represents a conflict between her loyalties to her family and her assumed responsibilities towards her parents. She is preoccupied with a neurotic fear of losing her beauty and talks of little else. Actually she has a good figure and is well groomed.

7. *A.T.* No information on the background of the father was obtained.

   The mother was the oldest of five children. When she was two and a half years old she was left, together with a younger sibling, in Italy to live with relatives while her parents went to America. She says she was never allowed a playmate. At nine years she came to America. There were several small children and the responsibility of keeping house while her mother went to work fell to her, a responsibility from which she has never been able to wean herself in favor of her own children and husband. This energetic resourceful woman speaks in childish

complaints of her loss of a normal childhood. "Just think, I did not know my own mother when I came to America." The quest to "know her mother" has remained the dominating problem.

8. *A.Sch.* The father was one of five children. No more information was obtained.

The mother, one of six children, came alone to America at 16 years of age. She will not talk of her early life, nor of the conditions that confronted her in America. "I am a woman alone in the world." She appears to be a selfish and self-centered woman, and wants all attention to be directed to herself. She no longer distinguishes between facts and fantasy. Her statements are contradictory and unreliable.

9. *K.F.* The father was an only child. He was considered a "wild boy." He married at 19 years without sufficient emotional maturity to adjust to a family. He has been a chronic alcoholic since the birth of the patient.

The mother was also an only child. Her father drank, and the parents were separated when she was a baby. "Until I was 16 years old I thought my father was dead." She now resents this false information. "Every girl has the right to know her own father." She was reared by an aunt and an uncle as her mother was in domestic service. "I was raised too strict." She married at 17 years "the first boy I met, to get away from them." She is a pleasant uncomplaining woman, though she has had a difficult life with a drunkard as father and husband.

10. *D.Ko.* No information on the background of the father was obtained.

The mother was the youngest of eight children, and six years younger than the next older child. She says that she was an unhappy, little, fat girl and came alone to America at 17 years, with a spirit of adventure and eagerness for new opportunities. She married two years later and maternal responsibilities then robbed her of her opportunities to achieve her ambitions. She is an intelligent and alert woman and has lately resumed her education.

11. *L.S.* The father comes from a talented family. He has himself never reached a position compatible with that of other members of the family.

The mother was the oldest of four children. She grew up on a farm in Russia, and recalls with pleasure her association with her father and the many lessons he taught her about life. She does not speak of her mother. She blames herself for her inability to handle certain situations in later life. They all have been contrary to her childhood observations, beyond which she did not mature.

12. *A.C.* No information on the background of the father was obtained.

The mother complains about her own guarded childhood, when she was allowed to sit on the steps but never to enter into play with other children. She was an over-protected child "and never like other children." "How I longed to run and play." She grew up in the South and came to New York with her older sister, who seems to have been the driving and dominating personality.

13. *L.C.* The father was the fifth in a fraternity of six children. Both his sisters, his next oldest and next youngest siblings, died young.

The mother was the third child and third girl in a family of six children. "My mother fainted each time that she heard that it was another girl." Her early life in Poland, during the World War, was full of hardship, fear, and persecution. She sought an escape in ambitious dreams of a career as a movie actress. "I went to Vienna to have my picture taken." She speaks with regret of the brilliant marriages she might have made. When she was 18 she came to America, working her way through Europe from village to village until she reached port. In New York she was met by an older sister with whom she was incompatible. She throws much blame upon this sister for her mistakes and failures. But she was never able to free herself from her influence. Later on her parents came to live with her for eight years, until their death. Her at-

tachment to them was stronger than that to her own family.

14. *D.Ka.* The father has been dead for ten years, and the mother did not know his family.

The mother was born in Italy and came to America in childhood with her family. She describes her early resentment against her sisters for seeking pleasure rather than staying at home and helping their mother. "I was always one to stay with my mother." She relates her extreme embarrassment when her breasts began to develop, and she formed a habit of keeping her arms crossed over them, a habit which she has never lost. She continues to help and protect her mother, and the need to do so supercedes consideration of herself and her children.

15. *M.H.* The father was the fourth of five children in a well-to-do Hungarian family. He was five years old when his mother died. He never liked his stepmother, and felt that she was unfair towards him. He was 18 when his father forced him to leave home because of conflict with the step-mother. He recalls his childhood as one full of fear and insecurity and without emotional warmth. He was able to secure a position corresponding to his good education, but he lost this position and is bitter and resentful over his failure.

The mother was six years old when brought to America by her parents. She has a younger sister and brother. Her mother was a domineering woman with a paranoid drive for cleanliness and the preserving of the family possessions. She gave vent to her irritation by yelling at the children, and Mrs. H. unconsciously covers her ears now when she mentions this. She complains that her mother never allowed her to have friends, and is bitter and resentful about her unhappy childhood. Yet she feels guilty even now if her actions do not meet her mother's approval.

16. *J.F.* No information on the background of the father was obtained.

The mother came to America when she was about 14 years old to join her father. She was sent at once to work and her earnings were used to buy tickets for other members of the family. After their arrival she continued to work in sweat shops and had to do the household work in the evenings, as her mother adjusted poorly to the new world. She looks back upon those demands made upon her in her youth with bitterness, and is indignant with her brothers and sisters who fail to show the appreciation she expected. This same attitude of not finding the deserved reward for her sacrifices is carried over in all her other personal relationships—except with her son. She is still quite foreign here, and speaks English poorly.

17. *E.C.* The father has two sisters, neither of whom married. He has failed financially and is dependent upon support from his wife's family. He spends the greater part of his time sleeping. He tries to compensate for his inefficiency by enforcing strict moral rules over his household.

The mother grew up in New York City as the youngest of two sisters. She expresses deep resentment against her childhood. She describes her father as cruel and inhuman. "Only my child made him into a human being, something I was never able to do myself." After her mother was institutionalized for a mental condition when Mrs. C. was 30 years old, she provided a home for her father until his death.

She is apologetic, insecure, and extremely modest. She feels cheated by life and resents the fact that she has never attained maturity and satisfaction within herself. She considers it a mistake that she accepted a conventional rôle in life and it embitters her that she could not break her tie to her parents and childhood. She has kept up her abilities for secretarial work, shorthand, etc., but never made an attempt to find a position.

18. *I.V.* The father was the fifth in an Hungarian family of eight children. He came to America young, learned a trade, and adjusted fairly well to the new country. He is a kind, tolerant, though somewhat immature man.

The mother was third in a family of five children. Her mother maintained a boarding house in the Pennsylvania mining district and the children were called upon for much help. They were criticized when they did not work well, and were never praised when they did. Mrs. V. is the only child who has married. She is critical of her mother, but her explanation for her illtreating the child is "My mother raised me that way." She is a self-centered, arrogant, unreasonable and cruel woman. Without provocation she enters upon a loud condemnation of sexual delinquency.

19. *H.D.* The father was born in Scotland, one of several children. He never discusses his early life, not even with his wife.

The mother was fourth in a family of seven children. She came to America at 18 years, following her two sisters, and worked as a domestic until her marriage. "I was always the different one in my family." She was the only brunette among them. She had a strong urge to contribute her earnings to her parents and younger brothers, and blamed her sisters for not doing so. She complains that her contributions were not appreciated enough. "But I am glad I did this; it is a good deed to my credit." She continues to sacrifice herself for others. She accepts her husband's abuses with fear rather than rebellion.

20. *H.B.* The father was the older of two brothers, and he emphasizes their strong emotional tie and affection for their mother.

The mother had one older sister. Her mother died when Mrs. B. was four years old and the children lived with neighbors until the father remarried. The older sister died when Mrs. B. was ten years old. She relates these early events of her life without display of emotion. She found her step-mother kind but never loved her, and exaggerates the attention which she herself received from her father. She is a well-poised woman who accepts without protest the domination of the mother-in-law, saying that she likes harmony.

21. *L.B.* The father was the fifth of seven children. He learned the tailoring trade from his father, and speaks with regard and satisfaction of their work together. As opportunities for work were limited at home (Poland) he went to the Argentine when 19 years old. He was persuaded by his wife to immigrate to the United States with the advantage of having an American wife. He meekly states that he has always regretted coming here to stay.

The mother of the patient was left in Poland with her mother when her father went to America. The World War intervened and necessitated a long separation. Mrs. B. was 11 when her mother was killed by soldiers and she was left without a home and the necessity of taking care of herself. At 14 she came to America and joined her father, who had remarried. Her earnings were needed and she was given no opportunities for schooling. The relationship with the step-mother was one of friction. She feels that she has been exploited and has been robbed of all the people who loved her.

22. *J.Sch.* The father is the oldest of three children. His father died during the World War. Much of the responsibility for the family fell upon him when he was an adolescent. He accepted the remarriage of his mother with mature dignity.

Mrs. S. was the fourth in a family of six daughters. Her father was in America during the World War and the struggle for survival of the family in Europe was keen. They lived in constant fear of persecution, especially of rape. She admired her mother, whom she describes as an active woman, a capable seamstress, but who seemed always too busy to devote herself to her children. The family was reunited in America when she was about 15 years old. She speaks with indulgence and with self-pity of the horrors of her early life. She feels so weighed down by her fears that she finds nothing positive in life and is full of complaints: too much work, monotony of housekeeping, her

own poor health, and economic insecurity.

23. *L.R.* The father was the oldest of four children.

The mother was 16 years old when she came alone to America and joined a married sister. "The life in her home was the first and only happiness I have known." Her mother is now in America and makes her home with Mrs. R. and there is bitter antagonism between them. After 25 years in America she is almost as foreign as a recently arrived immigrant. She tries now to educate herself, evidently stimulated by the fear of losing contact with her child. She feels that her relatives have deprived her of the right and freedom to live her own life. She never had any mastery over her environment and feels defeated by it.

24. *J.O'C.* The father was the oldest of eight children. He looks back upon his boyhood on an Irish farm with happiness. He feels himself as part of the soil, and misplaced as a bus conductor in New York. While playing a subservient rôle to his wife, he over-emphasizes his physical prowess and courage.

The mother was the fourth of six children, and she remembers her childhood as unhappy, hard, and bitter. She was eight years of age when her mother died of an abortion following an accident. The maternal grandmother reared the children. When about 12 years of age she lost her little brother whom she deeply loved. She was 19 years old when she came to America to work as a domestic, and she speaks with loyalty and devotion of the mistress with whom she stayed for many years. She is a nervous talkative person who dominates her husband and her home. But she is personally insecure and conventional and in need of reassurance.

25. *W.O'G.* The father reports that he weighed 14 pounds at birth. His mother died of the delivery, and he is acutely aware of his cost to her. He and his two brothers lived with various relatives and never had a home of their own. He was 19 when he came to America.

The mother of the patient was third to the youngest in a family of eight children. She was a fat little girl and was quite sensitive about being teased and called "Fatty." She did not want to discuss her early life in Ireland. In her only reference to her mother she spoke with criticism and bitterness. She came to America at 18 and worked as a housemaid until her marriage. She is a slow and insecure woman, fearful and apprehensive. She is sensitive to blame and disapproval, be it from her husband, her neighbors, or the Church, and she is only too ready to turn blame upon herself.

26. *D.B.* The father is the youngest of three brothers.

The mother is the only surviving child of six pregnancies of her mother. She was ten years old when her family came to America. She never was able to master the language without accent and was sensitive about this. She has never been away from her mother one night, except when her children were born. She both blames and idolizes her mother for this utter dependence. "When my mother goes out of the house I feel I am being crushed by the walls." She is a colorless, immature woman and thinks only of herself and outer appearances. She suffers from and complains of the poor economic conditions, but takes no active steps for improving or adjusting to the situation.

27. *H.Pe.* The father was fourth in a fraternity of seven children. He was born in Cuba of Spanish parents of good educational background. He was 30 years of age when he married. He is a charming and well poised man, but so influenced by his wife's insecurity that he cannot give his children the positive guidance which his personal development promises.

The mother comes from an Italian peasant family in Florida. She was second of five children. Her father died suddenly when she was nine years old, of a heart attack following active play with the children. Her mother went to

work and left Mrs. P. to care for the household. "I was never a girl like other girls." When she was 14 her mother remarried and she was so enraged at this disloyalty to her father that she left home, lived with an aunt, and refused to see her mother again for more than 20 years. She is active and vital but restless. In spite of all her drive and aggressiveness she is apologetic and on the defensive. She talks, eats, or smokes all the time.

28. *St.F.* The father had one brother and one sister. He comes from the same Ukrainian village as the mother, and they met again in New York.

The mother was the only girl and had five brothers. She missed having a sister and kept very close to her mother. Her childhood was filled with fears of persecution and pogroms. But she speaks with pleasure of their home life. When she was 13 she lost one eye through an accident. This accident has determined much of her response to life, and she still trembles and pales when she mentions this experience. She relates her nervous apprehension and fear of death to this episode. Speaking of her marriage and her husband, she says: "He knew me before I lost my eye. I was beautiful then; he knew me when I was beautiful."

When she was 14 the family immigrated to America. Her mother was denied admission and died shortly after she returned to Russia. "I had never known my mother as part of America, so I did not feel the loss so keenly." She kept house for her father and brothers and continued to do this for several years after her marriage.

29. *F.B.* The father comes of a sturdy Pennsylvania family of German descent.

The mother tells a story of a difficult childhood in Hungary and of having been sent alone to America when she was ten years old to live with a "rich uncle" whose actual condition was one of great poverty and in whose family she became the scullery maid with no opportunities of schooling. She relates that her mother died shortly after she left home. She tells a fantastic story of a marriage at 14 years of age to escape the drudgery, and says that this marriage was later annulled. She claims that she then was successful in a career as a movie actress, and that she gave up this career for marriage and motherhood. Her information is unreliable and contradictory. Everything she says centers around her unhappiness and sacrifices, and her broken health as the only reward for all her devotion.

30. *A.Hi.* The father was one of five children. His adjustment to marriage and work indicate a man of immature development.

The mother was second to the youngest in a family of six children.

She was ten years old when her family came to America. The father was denied admission, but he joined his family a year later. The older children worked, and Mrs. H. was kept at home to help her mother. She was most unhappy in this rôle, and greatly resents that she had no schooling and is illiterate. When marital difficulties developed she found a job and returned to her mother's home. She is an alert and intelligent woman, and her appearance belies her illiteracy. She is dominated in her personal relationships by self-pity and reproaches. She blames others for her unhappy life and bears her burden like a martyr.

31. *H.L.* The father comes from a family of six children. His father was a strong ritualist and tried to enforce his orthodox rules upon his children. The family came to America when he was 14 years old. He attended a Hebrew school and later worked in the library of the Jewish Seminary. When he was about 20 years old he gave up his position in protest to his father's dominance, and worked as a salesman. He regrets now that he made this change, and blames it upon the intolerance of his father. His attitude towards life is one of passiveness and defeatism.

The mother was the youngest of nine children. The family came to America

when she was eight years old. Her father was an alcoholic, and she recalls the shame and misery which this brought to her childhood. She never dared bring friends to her home. Her older brother, who was fat and red-headed, took the father rôle, and she harbors an intense hatred for him and the resemblance of our patient to this uncle is an insult to her.

32. *B.F.* No information was obtained on the background of the father.

The mother was the youngest of six children. Her father died when she was ten years old. She had to earn her living after she was 12 years old. She feels she got little consideration in her childhood "just as it happens with European children." She was only 14 years old when she came alone to America and into the household of a sister whom she did not know. She was an overdeveloped girl for her age and was sent at once to work rather than to school.

33. *A.H.* The father's parents were divorced, and he was raised by a stepfather. He had several sisters and one half-brother. He was born in New York and joined the Marines when a young man. He is described as a "perfect American." He has been greatly worried in his work on account of Communist activities among his fellow workers.

The mother was the second of five siblings. She was born and raised in New York and attended high school for one and a half years. She talks endlessly of her own operations and physical complaints and of the proper way of life. She is tense and highstrung and emotionally unstable.

34. *H.M.* The father was one of three brothers. He grew up on a farm, worked hard, and feels now that only in such activity can a man be really happy. He is a man of decided opinion, superstitious and prejudiced.

The mother had one brother, ten years her senior. She was an obese child and when she mentioned this, she said: "I never had a home like other girls. I had to live around with any aunt who would have me." She was visibly disturbed when questioned about her childhood, and gave no detailed information. The traumatic childhood experiences have left her sorry for herself and with a feeling of being different from other people. She is verbose and insecure, and is afraid of her own opinions and decisions.

35. *M.M.* Both parents were born in America. Little information was obtained on the background. The mother feels a close tie to her own mother who has always been living in her household, and was present when visits were made. She is talkative, nervous, and insecure, and asks naïvely: "What can I do to stop yelling at him (her son) all the time?"

36. *F.M.* The father was born in Italy. He immigrated when 14 years old. He is a taxi driver, and stays out from 16 to 18 hours a day. He is described as healthy, not nervous, and "as calm as one could make them."

The mother was born in Italy and was the next to the youngest child in a family of seven. Her father died when she was five years old and they were left very poor. She came to America when 14 years old. She and her mother lived with a married sister whose husband "was like a father to me." She went out to work and had to attend to the household. "I worked like a dog. Mother was too old, and the younger sister went to school." She sees life only in the light of her hardships and disappointments. "I was deprived of everything. I don't want my children to be deprived of anything."

37. *St.Sp.* The father is the younger of two brothers. Because of his dissatisfaction at home he went to work at 17, and thus did not complete his education, an important factor in his insecurity in difficult life situations. He weathers life poorly and at times threatens suicide.

The mother was the youngest of five children. She grew up on the east side of New York. She describes her father as a cruel man who often beat his chil-

dren with little cause. In spite of her resentment against him she suffers from a sense of guilt that she no longer allows him to live with her. Her mother was a chronic invalid, and upon Mrs. S. fell the responsibilities of the home. "I was just a duty girl. I never had any life of my own like other girls. But I never believed that my mother could die," she remarked in speaking of her mother's death. Her strong ties to her past have prevented her from moving forward with her own family. "I was neither a child to my mother nor a mother to my children" she says when speaking of the first period of married life when the family lived in the home of her parents. She is insecure and nervous and haunted by fears.

38. *H.Pr.* The father was one of seven children. He came to America when 17 years old. He traveled with a distant relative but was thrown on his own upon arrival. He was insecure and ill prepared to meet life alone.

The mother came to America at 15 years. She had a brother here but he offered her no security and she was left to find her own way. She lived a lonely life in cheap boarding houses. She went from job to job, afraid and insecure, and never able to learn a trade. She is a very primitive, self-centered woman who wants only to talk about herself, and weeps copiously with self-pity.

39. *J.P.* Little was learned about the early life of the father. He formerly worked in an electrical company, but had to discontinue on account of constant headaches. The company doctor denied the presence of an occupational disease. This may be one reason for his distrustful attitude towards medical advice.

The mother was the oldest of a group of children. Her own mother had been raised in a very sheltered environment, and never had to do anything for herself. Her father died when she was 14 years old. She was more efficient than her mother in shouldering the responsibilities of the household, and in caring for the younger children. She is a capable, intelligent woman who reveals little of herself. She found it necessary to return to her mother's home when her fourth child, the first girl, died as an infant to recover her mental equilibrium.

40. *G.Th.* The father is the fourth of five children. He was deeply devoted to his mother, and demanded that the first child be named for her. He is a poor provider, less ambitious than his brothers. He thinks that his father worked himself to death, therefore he wants to take good care of himself and avoids work. He was gas poisoned during the World War. His wife blames his nervousness and ill health upon this episode. He is an ardent participant in the activities of the American Legion.

The mother had five brothers, and six other siblings died in infancy. She is confused about dates, but says that sometime during her adolescence her mother died. She says that she always felt shut out of her mother's life. Her father remarried a few months after the death of his first wife. Mrs. Th. left home immediately, lived with various relatives and family friends, and refused ever to see her father again. She has broken with the other members of the family. She tried to make a career in business life and married when she met with disappointment. She is full of bitterness and resentment and blames others for her dissatisfactions and unhappiness. She indulges in fantastic plans of what she might do if not tied down by her family, and makes them feel guilty and miserable for her failure.

Parental Relationship

The relationship between the parents, their mutual compatibility and the harmony of the marriage was evaluated as to the stability and security which the home could offer to the children. The assessment was based more often on information given by the mother alone than on independent representation by both parents. The interviews in which both parents were seen together were usually unsatis-

factory and lacking in frankness; frequently the fathers were interrupted by their wives and not permitted to express their point of view. There was one exception (case 18) and here the antagonism between the parents was so violent and primitive that both expressed their dissatisfaction without consideration for the other's presence. In all cases where both parents were seen separately good agreement was observed between the two representations of their relationship; in cases of disharmony the wives were generally less restricted in expressing contempt for their partners. In a number of cases no direct complaints were made against the husbands, but undesirable traits in the children were explained as "like the father" or "my husband's people," and the mothers felt greatly annoyed by the similarities. On the whole the picture of marital relationship as described by the mothers appeared to represent the situation adequately.

The investigation of the personal development of the parents had revealed many fathers as weak and ineffective persons. The women gave the impression of greater drive and resourcefulness, although many exhausted their energies in constant nagging and complaining. This difference in the temperament of the parents became even more apparent in their mutual relationship. Some men who appeared to be self-reliant and well adjusted in their social relations played a subservient rôle in relation to their wives (cases 24 and 27). Some women claimed that they handled the jobs of their husbands, or that without their help and work the economic circumstances would be inadequate.

In five families the impression was gained that the relationship was stable and harmonious without obvious domination of either parent (cases 6, 12, 20, 31, and 32). In two instances the wives appeared to be insecure and were apprehensive of their husbands' opinions and criticism (cases 25 and 34). In all other homes the influence of the mother was predominant in the household, especially with regard to the rearing of the children. In two households a grandmother (cases 14 and 20) played the leading rôle in the family constellation. The father's position in the home was frequently further weakened by the presence of grandparents in the same household.

In two instances (cases 8 and 9) the father had deserted his family after conception or birth of the child who later became obese. In another case the father had died when the child was small (case 14).

In 11 families the relation between the parents was acute and fraught with bitter quarreling. Frequently the children participated in fights which were sometimes waged over their rearing, or in competition for their affection; or else they were frightened and terrified over the outbursts of rage between their parents. In ten families where the disharmony between the parents was not so apparent the mothers gave expression to outspoken disloyalty and disdain towards the fathers, and they frankly admitted regret of ever having married. In none of these ten families was it possible to establish contact with the fathers. In the remaining nine families the degree of compatibility, though varying, was above the level just described. In one of these families no true picture was obtained (case 1). The mother described an ideally happy marriage; some remarks of other relatives indicated that the relationship was not so pleasant as the mother attempted to depict it.

In all families, even in those in which no open friction and disagreement was observed between the parents, the absence of common interests or partici-

pation in social life outside the narrowest family circle was quite striking. Some fathers sought interest outside of the home in which their wives could not or would not participate (cases 33 and 44) or did so only with loud protest (case 17). The lack of companionship could not be explained on the basis of marked differences in the outer circumstances of the parents' lives. Two mothers (cases 2 and 23) were inclined to blame the misunderstanding between themselves and their husbands upon a great difference in age. In another family (case 27) where the difference in age also exceeded ten years no difficulties were reported on this account. In the majority of cases the age difference between the parents was not greater than five years. In only one instance (case 24) was the mother older than the husband (Table III). The educational background, although not always the same, revealed no marked differences. The intellectual endowment appeared to be adequate in all cases. The couples were generally of the same racial and national background. Three cases of mixed marriages (cases 14, 15, and 29) were observed. In one of them the father had died (case 14) when the patient was small; in the two other families the difficulties appeared not to be related to this difference.

No effort was made to obtain specific information on the sexual adjustment of these couples, although free expression of all aspects of their personal relationship was encouraged. Only a few mothers instigated a discussion of their sexual relationship and compatibility. Sometimes the emphasis was laid on their dissatisfaction and this information was offered as another expression of the husband's incompetence. Several women spoke of the shock of the marriage night and to them sexual matters had remained something filthy and not to be discussed. Other women implied that sexual relations had ceased. On the whole the impression was conveyed that subjects relating to sex were suppressed, not only during these interviews but also in the rapport between the parents. One mother (case 19) blamed the failure to conceive a second child upon the low sexual drive of her husband. No other mother verbalized this; but one may raise the question as to how far the low fertility in these families is an outer expression of an unsatisfactory marital relationship.

The inquiry into the marital relationship was not intensive enough to allow a discussion of the causes for the deficiency of rapport and emotional stability. But it appeared to be closely linked to the personal development of the parents, particularly of the mothers, who were so preoccupied with their personal problems and unhappiness that they could not give themselves fully to their families. At the same time they dominated the household without being able to provide a secure and harmonious atmosphere.

1. *Z.F.* The mother portrays an ideally happy marriage, but refuses cooperation for an interview with the father. She never mentions him unless she is asked direct questions, and then her answers are evasive and defensive.

   They were married when 19 and 21 years old, and immediately established their own home. Three years ago the father moved with his family into the home of his mother.

2. *H.W.* The mother states that she has no love for her husband. She met him, through arrangement of the families, when he returned on a visit from America to the small Russian village where she was living. He is 15 years older than she, and she accepted the marriage as a means of escape from an unhappy home. Financial circumstances here were disappointingly poor, and they are continuously dependent upon

relief. The mother avoids making an appointment for the father.

3. *B.T.* The mother is the stronger personality. The family has been on relief for several years, though the father is a capable man in appearance. One observes a pleasant relationship between the parents, but he appeared suspicious of any criticism she might offer of him and of the children.
4. *F.P.* The mother is a strong, dominating woman while the father is a weak ineffectual person with a chronic thyroid condition for which he has had one operation. The mother manages the small business of the family while the father takes the dependent rôle. She complains of being overburdened. Neither spoke to the other on the two occasions when seen together.
5. *E.B.* The mother openly regrets the marriage and the loss of the career for which she feels she was destined. She has a better education than her husband, and has always felt herself superior to him. The mother feels that she is being punished because she married against the advice of her mother. The husband is an inadequate provider. According to the mother he comes home only to sleep and spends no free time with the family.
6. *Th.Sk.* The mother gives the impression of a good marital relationship. "We were both alone in this country and we both appreciate even more the family here." The father appears to be a good provider and the mother an adequate housekeeper.
7. *A.T.* The father plays a minor rôle in the family, and has no place as head of the home. The mother conducts the household which is that of her parents. The father is inadequate to support the family. The mother expressed no disloyalty to the father but spoke of him only when questioned.
8. *A.Sch.* The mother gives several conflicting versions of her marital history. She says that she has been married for more than ten years, and that the husband deserted her some time after the birth of the child.
9. *K.F.* The father was 19 years of age, and the mother 17 at the marriage. The father resented the second pregnancy, that of our patient, began to drink and abuse the mother, and the mother returned to the home of her aunt who had reared her. She has since returned to live with her husband.
10. *D.Ko.* The mother is a large vigorous woman while the father is a small, somewhat effeminate person. There appears to be good rapport between the parents when they are together.
11. *L.S.* The mother is the stronger personality of the parents. She admires her husband, the talent of his family and his stability, but feels that he is too soft for a man, that he lacks virility and strength.
12. *A.C.* This is a superior Negro family and the relationship between the parents appears to be pleasant.
13. *L.C.* The mother came to America when 18 years old and married when "still a greenhorn." Apparently the older sister with whom she was staying urged her to get married. "I did not fall in love." She speaks with disgust of "married life" and resents the size of her children for which she blames the father. She made him come to the clinic to demonstrate his obesity. "There you see where they get it."
14. *D.Ka.* The mother is Italian and the father was Jewish. He was accepted by her family as he embraced Catholicism but she was not accepted by his family. He died when our patient was two years old. When the mother criticizes the patient she often remarks, "That is the Jewishness coming out in her."
15. *M.H.* The mother is Jewish and the father is Catholic. The children have been reared Catholic. At the time of the marriage the father was successful. She admired her husband for his cultured background and his successes, and is pressed down now by his failures. She has a kind maternal attitude towards him and he calls her "Mother" in a childlike voice.
16. *J.F.* The mother is a bitter and

resentful person. She feels rejected by her husband's relatives. The qualities which she does not like or understand in her daughter she explains as "like her father." The impression of little security in the marital relationship between these parents is conveyed.

17. *E.C.* The father refused to come into the living room when the family was visited in connection with this study. The mother belittles him and blames him for the child's difficulties, for his failure in business, and for his personal habits. She finds no comradeship with her husband and regrets her marriage. She says that she entered marriage only to provide a home for her father after her mother's illness.

18. *I.V.* The mother depreciates the father and says: "If I don't work, we don't eat." There are bitter fights between the parents and the father loses control of himself in his rage against his wife. She refused in the beginning of the marriage to leave her parents' home, but when her husband could not find work in his trade they were forced to come to New York.

19. *H.D.* The father is alcoholic and abuses the mother when drinking. He is unreliable in his positions. The mother is the strong member of the family and protects the father with his employers. His salary is also paid to her and she controls the family economy. He has rejected the child because of his obesity and the mother interprets this as a personal rejection of her. She complained of his low sexual drive.

20. *H.B.* On the surface this appears to be a well-adjusted marriage. Each parent speaks of the other with mutual respect and consideration. The father's mother has lived with them since the marriage, and it is she who controls the household, or rather, it is to her wishes that the father acquiesces. The wife accepts this situation with astonishing placidity.

21. *L.B.* The husband is a weak, soft, unaggressive person who has been in this country for only eight years and is still foreign here. The wife planned the marriage when he was in this country as a visitor.

22. *J.Sch.* The mother considers the marriage a good one. Repeatedly and with resignation she made the statement that "Jackie is just like his father," generally after she voiced some complaint against Jackie. He seems to accept passively his wife's constant complaining.

23. *L.R.* The husband is 15 years the wife's senior. Her family were under financial obligations to him and when they could not meet these, she was told it was her duty to marry him. She says that she has never loved him, and that she has always resented the basis of her marriage. There is much friction in the home. The mother's mother lives with them and the mother feels that her mother and husband are together and against her in these quarrels. Many personal factors in her life are unknown to the husband.

24. *J.O'C.* The husband is four years younger than the wife. She is the leader in the family. She interrupts him in a superior manner when he tries to give some verbal expression to himself. His days off are devoted to housecleaning. But one feels a sense of stability and family unity in the home. Neither parent adjusts well to urban life, coming as both do from rural Ireland.

25. *W.O'G.* The father is a stable man, proud, hardworking, and with an intense loyalty to his family. The mother is a slovenly housekeeper and a poor home maker. She expresses the sentiment that her husband does not trust her. A large portrait of the father's mother hangs in the living room, and to this attention is immediately called.

26. *D.B.* The mother did not mention the father of her own accord. She refused to make an appointment for him to be seen. The home centers around the mother's parents. The husband married into the business and the mother refers to everything they have as "mine" though her husband is the only member of the family active in business. Their place of residence is in-

convenient to the business. This was commented upon, and the mother replied that she "thought only of her children." The mother implies that sex relations have ceased.

27. *H.Pe.* The father was 30 years of age and the mother 17 at the marriage. He is a small man of 125 pounds, and she weighs more than 200 pounds. She is the moving force in the family. "He lets me have my own way." He is superintendent of an apartment house and she shoulders equal responsibility with him. There appears to be a good personal relationship between the parents and she is coy and retiring in his presence.

28. *St.F.* The mother offered no cooperation in making an appointment for her husband. She exaggerates the love relationship between them. At one time she said: "My brothers worship my husband and they won't let me say a word against him"—a remark that indicated some disharmony. They are a proud family and have accepted many privations rather than turn to relief.

29. *F.B.* The father works at night. He has the small, more exposed bedroom of the house while the child has the large one. The father is Gentile, the mother Jewish, and she lives in fear of her racial origin becoming known. The mother states that she gets her husband's positions for him and manages all of his affairs, but there is doubt of the truth of this. The parents talk well together when discussing the child.

30. *A.Hi.* This marriage is a sad and bitter story of disharmony from the beginning, with many periods of separation. The union has remained permanent since the birth of the patient, a situation resented by the mother. The home life is fraught with friction and bitter quarrelling in which both the parents and the children participate. The mother discusses the most intimate aspects of sex life with the children.

31. *H.L.* The parents speak with loyalty and devotion of each other. The mother has less education than the father, and his parents disapproved of the marriage. The financial circumstances have been better previously. The mother dislikes the poor neighborhood in which they now live. But there is no reproach against the husband.

32. *B.F.* The mother considers her marriage a happy one. She says that she always felt more at ease with her oldest son than with her husband. She always considered herself a cold woman sexually, but she liked to talk about sexual matters with her oldest son after he was 16 years old. This son was killed in a street accident when nearly 17 years old. She developed a severe mental depression. Her husband treated her with the utmost tenderness and consideration during this period.

33. *A.H.* The mother describes the marriage as a happy one. Her mother knew her husband since he was two years old. She has a good education and is a capable seamstress. But she refuses to work to contribute to the household finances, as she feels it is the husband's responsibility to do so.

34. *H.M.* The parents were childhood sweethearts and came from farms in upper New York. They were born to the soil and are misplaced in New York. The mother quotes him often, and there is apprehension and insecurity when she acts against the father's advice. The impression of a stable marriage is given.

35. *M.M.* The father works at night and sleeps during the day. The home is well done, attractive, and comfortable. Neither parent at any time cast any reflection upon the other.

36. *F.M.* The mother describes the marriage as a love match. They had known each other for five years preceding marriage. There were great difficulties during the first years of their marriage because the husband gambled and stayed away from home. He changed after the patient was born and has been a devoted husband and father. The mother resents the fact that he does not earn enough money. She tries to talk some ambition into the patient

by pointing out the poor example of the father.

37. *St.Sp.* The father is an anxious, apprehensive, insecure man who suffers from stomach ulcers. The mother is the stronger force in the family. The first eight years of marriage were spent in the home of the mother's parents, an unsatisfactory and unhappy situation. The mother states that she has never found satisfaction in her marriage and would never repeat her rôle if she had a choice.

38. *H.Pr.* The home is full of disharmony and bitter quarreling. Both parents admit that the marriage was a mistake, but there has never been sufficient financial security for them to live apart.

39. *J.P.* This is a family of high standards and a happy relationship. The mother operates a small store and the father is a postal employee with irregular hours, but the family all eat together and in every way possible maintain themselves as a unit. The mother is a stronger person than the father.

40. *G.Th.* The history of the marriage is one of discord. The mother says that she married on the rebound of failure to gain promotion in her position and has ever since regretted her hasty decision. She is critical of her husband, tries openly to alienate the children, and blames all their faults on the father. Added to the emotional incompatibility is financial dependence and ill health in both parents. The mother is the dominating force. The father is the finer person and the rôle forced upon him by his family provokes sympathy.

Size of the Family and Reaction to the Arrival of the Patient

The families of the obese children were conspicuous by their small size (Table III). The forty families had raised eighty-four children; this figure includes the patients and two siblings who had died during adolescence, shortly before the study was made (cases 11 and 32). The average number of children per family was 2.1. This figure is slightly higher than that for the whole group because fewer families with only one child were included (thirty per cent as compared to thirty-five per cent) (Table I).

This small size of the families is not a characteristic of the general population of the clinic. For comparison some figures on the size of the family of cardiac children are presented in Table IV. The information was obtained from the medical records of seventy-one children suffering from acute rheumatic endocarditis, ranging in age from two to thirteen years. The average number of children in these families was 3.09. The patients' position in the family failed to show the preponderance of only children. In only fifteen per cent of the families of cardiac patients were there

TABLE IV

	Obese Children			Cardiac Children		
	Girls	Boys	Together	Girls	Boys	Together
Patients	18	22	40	37	34	71
Living children per family (including patients)	42	42	84	127	92	219
Average number per family	2.3	1.9	2.1	3.44	2.8	3.09
Position in Family						
Oldest	3	7	10	8	9	17
Between	2	1	3	11	7	18
Youngest	8	7	15	15	10	25
Only	5	7	12	3	8	11
Brothers	11	12	23	39	34	73
Sisters	13	8	21	51	24	75

no other children as compared to thirty per cent in the obese group. In contrast, only eight per cent of the obese children had both an older and younger sibling as compared to twenty-four per cent in the cardiac group.

Another conspicuous feature appeared to be the small number of girls in the families of obese boys. The 22 boys had only 8 sisters, a factor which may be partly explained by the small size of the families. It is interesting to note that with many of the obese children the sex of the child had been a keen disappointment to the parents. Nine mothers definitely stated that they had wanted a girl in place of a boy; others implied it. Only one of the nine boys (case 39) had younger sisters, and another (case 31) had a younger brother. The other boys had remained the youngest or only child in the family, and the mothers continued to voice their resentment against the sex of the patient, generally without consideration of their presence.

In the group of obese girls, only one mother (case 1) had considered the sex of the child a "shock" to her expectations. Another mother (case 10) expressed resentment that one of the boys and not his twin sister, our patient, had died in infancy. She had considered the baby who died the superior child of the twins. In two more cases (cases 4 and 11) there is some indication that a male child would have been more desirable to the parents. Several of the mothers of obese girls expressed their satisfaction at having a girl child. The mothers justified their preference for girls by such statements as: "They are better companions," "You can dress them nicely," and "You don't lose them when they get married," expressing thus an attitude of considering their children a possession to be shown off or to be preserved, and not an individual in its own rights.

In twelve families the patient was the only child. Only one mother (case 19) wished to have a second child. Two of the mothers (cases 8 and 38) had rejected the idea of having a child. Both mothers had been married for over ten years before conceiving, and each stated that she had not recognized the pregnancy before she felt life, so foreign to them was the concept of motherhood.

Nineteen of the families had two children. Three of these had preferred only one child, but the second child was accidentally conceived, in all three instances the patient being the second child. Not one of the nineteen mothers had wished a third child, and four of them admitted induced abortions since the birth of the last child. In the three families with three children the third child had been unwanted; twice the patient was the third child. In the third family (case 13) the youngest, unwanted child was also markedly obese. Only one (case 39) of the six mothers who had four or more children failed to register resentment against having so many children.

This information concerning the attitude towards the arrival of the patient was given more or less spontaneously when the pregnancy of the patient was discussed. No direct questions as to whether or not the patient had been wanted were asked, nor were the unconscious reactions of these women to motherhood investigated.

Twelve mothers frankly said that they had not wanted the patient, and only one (case 3) of these expressed a real acceptance of the child. Two would not consider abortions because of religious convictions. Three claimed that the pregnancy was not diagnosed until after the time had elapsed when an abortion was medically safe. "Can you imagine what a stupid doctor I had to tell me I was in the change!" one

mother (case 15) exclaimed as almost her first remark about the child. Various reasons against abortions were given by the other mothers. Most of them had borne the children in preference to endangering their lives by an abortion.

Three mothers complained that conception took place too soon after marriage and all three felt that the child had interfered with marital adjustment. Neither had a second child, though one mother (case 19) expressed the desire for another child, and concern that she did not conceive.

Six mothers who had felt no resentment against the pregnancy expressed regret that they had children, and declared if they could repeat their lives, they would not again enter into motherhood. Many of the other mothers expressed a similar feeling of dissatisfaction with their lives without so clearly verbalizing it.

In a number of families the patients had been wished for or accepted to replace a dead person about whom the mother grieved. This was definitely expressed in case 6 where the mother was haunted by the fear that the first pregnancy, which resulted in miscarriage, had been her only chance for motherhood. Similar cases where the patient was conceived with the intention "to make good" for another child that had been lost during pregnancy or at birth are represented by cases 12, 22, 25, 26, and 27. In all these cases the mothers blamed themselves and felt responsible for having lost their first children, and they spoke a good deal of the dead babies. In another family (case 1) the pregnancy which had been accidental became acceptable to the mother in the hope for a boy. She wanted to name him for her father who had recently died and left no namesake. She never considered that she might have a girl. In two other instances (cases 10 and 39) another child, in both cases of the opposite and desired sex, died while the patient was an infant.

It is worth mentioning in this connection that two patients of 11 years (cases 11 and 32) who were already overweight, gained rapidly in weight after the death of an older sibling. In both instances the child who died had been the favorite of the mother. In another instance (case 24) the mother had denied that there had been any obesity among her siblings. Then one day she remarked: "John looks just like my dead brother, God rest his soul." The mother recalled this brother who died when he was a small boy as having been a very obese child. In another family (case 19) the father had had a brother who was markedly obese and who had died when young. The father, to whom the obesity of his son was an additional reason for rejection, never mentioned this dead brother, not even to his wife. She had heard about this brother through an acquaintance of her husband's family.

In other instances the mother's reaction to the pregnancy and the coming child had been influenced by such coinciding factors as financial reverses (case 28), interference with her ambition (cases 10 and 40), disease in the family (cases 4 and 37), protest against illness and medical advice (case 33) and the wish to keep a gambling husband at home (case 36). In three more cases the wish to give "only the best" to the coming child had made for careful planning from an economic point of view (cases 12, 17 and 34) and there was never "enough" for another child.

Only two mothers (cases 20 and 24) stated that they had been happy at the prospect of having a child; in them this feeling was not marred by apprehensive fears, grief, sense of guilt or resentment.

It may well be that an inquiry into the reaction to the pregnancy in a

different group of mothers will also expose disappointment and resentment in many instances. In this group of mothers it appears to be significant that they later did not adjust to the child in an objective manner but continued to voice and to be guided by their former emotional reactions. This persistence of feelings of displeasure and animosity in relation to the child is in harmony with the previously discussed delay of emotional maturity in relation to their background and marital adjustment.

Attitude of Parents to the Obese Children

The most conspicuous feature in the attitude of the parents to their children, especially to the obese children, was inconsistency. Most prominent was an overt display of protectiveness. But this seeming manifestation of devotion and affection was frequently like a thin veneer that barely covered the underlying insecurity in relation to the child. In some instances flagrant rejection and hostility expressed itself in cruel beating and inhuman threats which were used in disciplining the children. The contradictions were more frequently and distinctly observed in the mothers than in the fathers.

The insignificant position in the family life to which many of the fathers were relegated did not permit them to give constructive expression to their affection for their children. They frequently recognized the danger of thwarting the development of the children's personality by fostering a close dependence. Their personal insecurity and the subservient rôle which they played in relation to the mother (or grandparents), however, counteracted any encouragement and reassurance which they might have been able to offer. In 3 instances (cases 8, 9, and 14) the father was not living with his family. In one of them (case 14) where the father had been dead since the child was two years old, the maternal grandfather had been stable, kind and friendly to the child and had offered to her affection and emotional security. In 6 other families the occupation of the father, or his lack of interest, kept him away from the home, and curtailed his influence on the development of the children. In two cases (cases 4 and 19) the fathers openly rejected the children; in two others (cases 15 and 31) they were critical of and annoyed by the children's behavior and mannerisms. In all other cases they had a better rapport with their children and expressed their affection more consistently. But their authority was not strong enough to mitigate the influence of the mother's insecurity. In a number of cases the greater harmony between the father and the child aroused the jealousy of the mother; this was frankly expressed in case 21. In other instances (most obviously in cases 5 and 40) the mother had succeeded in alienating the child from the father.

As in the mothers the expression of affection took, in some fathers, the form of indulgence (cases 3, 13, and 38) and overprotection (cases 12, 17, and 27). Only in a few instances were these features more marked in the fathers; in such cases the mother vainly attempted to counteract his "spoiling" (cases 3, 12, 17). In some families the father had taken over details of the home life generally incumbent upon the mother and had given much personal care to the children, such as dressing and feeding them, and getting up with them at night. The number of cases in which this was recorded (cases 2, 7, 10, 24, 25, and 38) is probably incomplete. Marked difficulties were encountered in eliciting information relating to the early life and care of the children; such factors were reported and remembered

only in cases in which they had been unusually marked or had persisted.

Limited as the influence of the fathers was, their devotion and kindness alone appeared to make bearable the life of some children (cases 18 and 27). In general, however, their contribution to the family constellation was a negative one. They failed to create a sense of stability and to provide firm masculine guidance. Their helplessness and weakness magnified the import of the mothers' contradictory and frequently intimidating behavior.

Lack of positive rapport and of trust and confidence signified the relationship between the mothers and the children. This deficiency stood in striking contrast to the close bond of dependence which had been fostered simultaneously. The fundamental insecurity in the maternal attitude expressed itself in profound fear for the safety of the children, which seemed to permeate all their thoughts and actions. Constant apprehension of injury and death of the child seemed to be haunting many mothers. Only when the child was in their presence did they find serenity and peace of mind. The fear extended to concern for the physical dangers, including the ordinary risks of childhood, and for moral hazards. The degree to which the mothers suffered from the constant dread of possible perils varied in individual instances. But only a small number failed to register it. In the few instances where open disregard for the physical and moral safety was expressed, marked concern had been experienced in the past (cases 5 and 13) and the present neglect indicated the growing annoyance over the demands of the children; or else it bespoke the persistence of the reaction to the pregnancy and delivery (case 7). Some mothers recognized the irrational basis of their fearful apprehension and expressed bitterness for harboring such feelings and their inability to combat them. They complained about the constant emotional strain which it entailed. They would anxiously pace the floor when the children were away from home, haunted by visions of seeing them injured or lost; some were equally irritated by the child's actions and behavior when in their presence.

The morbid concern for the physical safety had led to numerous overprotective measures. Many children were accompanied to school at an age when other children are trusted on the street; or they were kept at home until the school lines had formed. Only a few children were allowed to play alone outdoors with children in the neighborhood, or to participate in organized group activities. Fear of contagious disease or moral endangerment were also quoted as justification for keeping the children apart, thus retarding them in independent personal and social development. Many children who otherwise were not let alone outside the home were allowed to go to the movies frequently, sometimes several times a week. Most mothers felt that there the children were safe from the dangers of the street. Not infrequently the children developed nightmares and other nervous manifestations. Though these symptoms were attributed by the parents to the excitement of the moving pictures, they were rarely considered as an expression of emotional tension and insecurity; only physical safety mattered. Equal disregard for the reaction and fears of the children showed itself in the cases where the children were unnecessarily exposed to the sight of suffering and illness (cases 1 and 17), thus satisfying the mother's concept of her own filial duties. It was the personal tranquillity and mental calmness of the mother that was sought through all the overprotective measures.

The same attitude was revealed in the frequent punishments to which the children were subjected. Many mothers stated that they, and not the fathers, administered corporal punishment. Many admitted that beating the children represented to them a relief from irritation, sometimes with little relation to the acts of the child, or even prompted by the exasperation which their exaggerated fears provoked in themselves.

In some instances beating and threats were used to provoke an emotional response from the child. One mother (case 28) in complaining that her son was cold and unresponsive reported that only recently had she been able to make him cry by beating him. And she found a certain satisfaction in his tears. Other attempts to stimulate demonstrative affection were encountered in the threats used in disciplining or intimidating the children. The threat of desertion by the mother or separation of the child from his home (such as leaving him in the hospital) was frequently used. The children whose dependence on the mother and home environment had been so overcultivated were thrown into panics by such threats. Their hysterical clinging to the mother and pleas not to leave them alone were interpreted as genuine affection by the mother.

The mothers' need of expressing and receiving affection was another powerful motive in the relation to their children. However, this need for affection did not manifest itself as the free flowing warmth and tenderness of genuine love and fondness. It appeared as the anxious demand of receiving from their children the affection which, they felt, had been denied to them in their childhood, and which they failed to find in their marital relationship. The desire to keep the child's love stimulated further measures of overprotection and solicitude. The fear for the physical safety was mingled with the fear of losing the child's affection and loyalty to an outside world, in which the mother herself had not been able to find a secure place. In this sense the growth and maturation of the children represented a danger which had to be warded off as it removed the basis of a relationship which gratified these demands of the mothers. By keeping the children in close personal contact, by ministering to their wants and wishes, and by not permitting them to develop personal independence and to establish satisfying relations with other people they constantly recreated in their children the need for their continued attention and affection, and thus justified their indulgence and overconcern.

Other mothers had the urge to compensate the child for their own "meanness," or to make good for previous neglect, or their wish of not bearing the child. They frequently recognized that they were responsible for some undesirable habits, or they were aware of the handicap which interference with the normal social development entailed for the children. The only way open to them of pacifying the children's increasing demands and of alleviating their own feelings of guilt was the presentation of more signs of devotion. "Giving love" meant the offering of concrete gifts such as food and services, rather than a genuine interest in the child's welfare. Thus they created for the child an environment of primitive luxury comparable to the dream of the perfect life described in the fairy tale of the "Schlaraffenland": the land of effortless living and abundance, and of perpetual idleness and gourmandizing.

The overt expression of this attitude manifested itself in the personal services which the mothers rendered to their children, and the excessive amounts of food which they served or

forced upon them. They continued to tend to the physical wants of the child as in infancy. Apparently, they gave the children the things of which the parents themselves felt deprived. The majority of the girls, and all boys except two, were still helped with their dressing. Only one child was below school age, and he was not being trained for self-care. They defended their actions with the excuse that the children must be in school on time. Lack of punctuality and of neat appearance would reflect unfavorably upon them, and would indicate that they neglected their duties as mothers. Many continued to bathe their children, often against loud protest from the adolescent boys. Elaborate means of protecting the genitals from exposure were devised in preference to trusting the boys to take a bath unaided. Some mothers continued to check on every bowel movement, or they awakened the children at night to send them to the toilet, feeling that control of the child's bladder function was their responsibility. Forty per cent of the children had been persistently enuretic, and the mothers objected to the advice of leaving the responsibility to the patients.

The prolonged infantilization had evolved in most instances as a simple continuation of habits established in babyhood; in a few instances sickness of the child appeared to have been a conditioning factor. Terms like "always" or "ever since a baby" were frequently used to explain why a mother continued to perform the simplest tasks of personal care without giving the child a chance to develop self-reliance and skill relevant to his years.

A vivid illustration of the persistence of old practices was found in the feeding habits. The findings have been presented in the article on the food intake (*1*) and will not be repeated in detail. Some older children still received mashed food or were spoon fed. Bottle feeding had been continued beyond the first year of life in thirty-eight per cent. Quite often it had been discontinued only when the children had refused the bottle. In 5 instances (cases 4, 10, 21, 36, and 40) it had been prolonged beyond the fourth year. Breast feeding, on the other hand, had been inadequate (no nursing or less than six weeks) in thirty-one per cent. Most children in whom bottle feeding was extensive had been inadequately nursed. Only two patients (cases 18 and 27) had been breast fed until 2 years of age. In these cases, though the mothers rejected the ways of the "old folks," it seemed to represent an adherence to national customs. The two patients were probably the most flagrantly abused children of the whole groups; at the same time they exhibited the most severe degree of obesity. The combination of inadequate breast feeding and prolonged bottle feeding may be likened to the other discrepancies in the attitude of the mothers. It is as if the desire to satisfy the infant with abundant nourishment had been impeded or exaggerated by the mother's reluctance to give something of herself.

The composition of the meals represented another form of perpetuation of infantile preferences. The mothers continued to prepare food which, they knew, the children would like and eat in large amounts. They would not dare to offer unfamiliar food, thus running the risk of having the children refuse to eat. The urge to stuff the children, and distress over any refusal to eat the sometimes enormous amounts were observed with great regularity. This factor will not be mentioned in each case history. It would involve a monotonous repetition of similar statements; only a few instances have been recorded as illustrative of the prevailing tendency.

A short note reflecting the importance of the attitude towards food in relation to treatment will be given in the abstracts of the following section. *Common to all cases was the high emotional value with which offering and receiving of food was endowed.* It was of outstanding significance as a balancing factor in the precarious emotional relationship between mother and child.

In one respect the prolongation of infantile care was indicative of the mother's wish to keep the children small and dependent in the attempt to secure their continued love and affection. However, it contained at the same time an element of mistrust and deprecation. By considering the child incapable of self-care the emphasis gradually shifted from the attitude of a free offering of devotion to that of an enforced sacrifice. In most cases both aspects could be observed side by side, sometimes in the same actions. There was increasing resentment against the contributions as the child grew older. This change in the attitude was indicated in the different reactions expressed by the mothers at different ages of the children.

In consequence of all the measures to retain the children under their personal custody and supervision, great demands were made upon the mothers. Though self imposed, the extra work was resented as an unescapable burden; complaints against the situation became more bitter and violent with increasing age and size of the children, whose very appearance belied the efforts to keep them small and dependent. The children were condemned and punished for shortcomings and traits which had developed in reaction to their rearing and lack of training. The mothers bewailed their ruined careers and broken health, responsibility for which was blamed upon the children, sometimes even traced back to the suffering during pregnancy and delivery. Many mothers felt that they had not received the expected reward for all their sacrifices. The increasing disappointment and self-pity expressed itself in merciless beating, constant nagging and criticism. Only one mother of an older child (case 26) failed to reproach him for his persistent dependence. She had not quite overcome the shock that babies are not dolls, and rather resented the fact that Nature did not create children even more passive than her boy. She complained: "That I would ever have to get up at night with a sick child I never thought," and sickness and other demands of life were considered misfortunes, of which they both were the victims.

It stands to reason that the particular response of the children contributed to provoking the mothers' reactions. On the other hand, a similar ambivalence had been revealed in their attitude towards their own background and parents. That some mothers were capable of a more satisfactory adjustment was expressed in the greater harmony and security in relation to another child.

The investigation of the attitude of siblings was not intensive enough to warrant a detailed discussion. Twenty-eight patients had one or more siblings. In 14 instances even the superficial information revealed obvious differences in the parental attitude. Only 4 times (cases 5, 26, 39, and 40) was preference for the obese child observed. In the other ten families the patients had been rejected for various reasons. In some instances (cases 4, 7, 15, 27, and 30) it appeared that the antepartum attitude of the mother had persistently determined the treatment accorded the child. In other instances the patient's failure to fulfill the expectations of the mother seemed to have contributed to

her preferring another more brilliant child (cases 11, 16, 30, and 36).

In contrast to the close dependence which they had fostered, many mothers entertained great ambition for the social success of their children. They were bitterly disappointed and considered it an insult to their pride that their children were frequently shy and retiring and unable to excel, or even compete in athletics and other activities. Endless were the complaints about the lack of grace and skill, about the cowardice and helplessness of their offspring, frequently intermingled with statements of how they had guarded their children. Rare indeed were remarks which indicated that the mothers looked upon the shortcomings as problems which concerned the children themselves, and for which they needed constructive help instead of further discouragement and condemnation.

The manifold expressions in which the conflicting attitude of the mothers manifested itself created an environment of emotional confusion and insecurity which might be hidden below the overt demonstration of indulgence and overprotection. The fundamental need of each child of being loved and accepted as an individual in his own right, and of growing and developing at his own rate was frustrated and called for special safety devices.

1. *Z.F.* Age, 5 yrs. "We were crazy about her," and the whole family treated the baby like a doll. The child was active and alert when younger. "She was perfect," and the mother enjoyed showing her off. In recent years, after some "fright," the child changed, and has become "nervous" and dull. The mother describes the child's relation to her father as one of great tenderness and affection. "She could sit by the hour and hug him." The mother exaggerates the child's need for her protection and constant presence. She says that the girl would not say a word, nor would she stay in a room without holding her hand. Actual observation does not bear out these statements. The child is not given any opportunity for self-dependence, and the mother continues to dress her and take care of all her personal needs.

   In spite of this overt display of attachment and maternal concern, the mother ignores the child's fears and continuously exposes her to situations where anxiety is stimulated. She takes her daily to her own mother who has dramatic heart attacks, so that the child may witness the grandmother's death.

   There are two older girls in the family. The mother avoids talking about them.

2. *H.W.* Age, 6 yrs., 6 mos. The father has given the child much personal care when she was a baby, such as baths, and getting up with her at night. The mother condemns the child for the same features which she herself had as a little girl but recreates in the child her own unhappy childhood. "She is lazy," "She has no friends," "I *beat* her so *hard* and then my heart is heavy all day," are remarks which she makes without regard for the presence of the child. "I get depressed and unhappy and can't help how I treat her." The mother dresses her and takes care of all personal details. Blame is turned upon the child for her lack of independent care, and the mother complains of the burden. She suffers from extreme fear for the child's physical safety. She is miserable both when the child is in her presence and when she is out of her sight. Any direct treatment for this child, such as exercises, is an added source of tension.

3. *B.T.* Age, 8 yrs. The father is indulgent and thinks only of the pleasure he finds in giving to the child rather than of any consideration for the good of the girl. "I know what it is like to crave sweets and not be able to get them." The girl is antagonistic and defiant towards the mother, who blames her for her size and for her refusal to cooperate with treatment. "I used to tell

her we were going to her aunt's house when we went to the clinic, and when we got there she couldn't do anything about it, but now she is too big to be fooled." Both the child and her older brother are independent in self-care and in their social contacts. The mother has not given this child any share in the duties of the household, and is not willing to accept this suggestion.

4. *F.P.* Age, 8 yrs., 3 mos. The child has always been considered a nuisance by both parents. The father has been ill since before her birth, and other members of the family say that they try to keep her out of his presence as much as possible as she upsets and disturbs him. The mother beats the child cruelly and the other children complain against her treatment of the child, though they too complain against her. When the child was younger the family spoiled and pampered her. She was bottle-fed until 5½ years of age, and was dressed until recently. At present, the mother expresses only criticism and blame for the child. She has no control over her and this again is blamed upon the child. They send her to camp during the summer with the idea of being rid of her, but nevertheless with real benefit to the child.

   The patient still sleeps with the mother, despite the mother's objections and complaints. There is expressed little fear of physical safety. "If she is out of my sight I am thankful." The mother is dissatisfied with all of her children, with the demands which they make upon her, and the responsibilities which have hindered her personal development.

5. *E.B.* Age, 8 yrs., 4 mos. The mother is trying to develop an exclusive companionship with the girl, which shuts out the father from the lives of both. The mother is overburdened with her responsibilities but she will do nothing to lighten them. She emphasizes her life as a sacrifice to her children, but follows this with complaints that she cannot take her children for necessary medical treatment because she must think first of her own health.

   The girl is dependent in that she is given no opportunity to develop a life of her own, friends, interests, play. She is allowed to go to school alone because the mother must consider her own health above the child's safety. But she is given responsibilities at home beyond her years, especially in the care of the baby brother. "I live only until my children grow up and I can be free," remarks the mother, but the dependence is being so ingrained in the children that her moment of release will never come.

6. *Th.Sk.* Age, 8 yrs., 6 mos. The mother reveals little of the family life, and the father was not seen.

   The children are given independence and responsibility. Concerning discipline she says: "It is no good I beat her all the time to make her eat the right things." No exaggerated concern over physical danger was expressed. Friends are encouraged and are given freedom in the home.

7. *A.T.* Age, 8 yrs., 6 mos. The father gets up at night with the children, and does many such tasks for them which are usually incumbent upon the mother.

   The mother is detached when she talks of the patient, and has an almost abnormal objectivity. The child is not overprotected, and is allowed to play with other children. The mother's concern is for the older daughter and she says that she is rarely concerned with the safety of the patient. It is of moral hazards that she is afraid, but she will never tell her daughters anything about sex, even for their protection. She thinks that a girl must learn such things only from her husband.

   The patient has an older brother and sister, and a younger sister. The mother wanted the two older children and takes pride in them. She feels that the two younger ones are so devoted to each other that they do not need more affection from her. The youngest was ill when a call was made to the home, and when the patient came in for lunch

there was no greeting of any kind between the two.

8. *A.Sch.* Age, 9 yrs. The patient has been told that her father is dead. "She is all, my whole life," the mother dramatically declares, and then immediately relates how the child has wrecked her life, her career, her marriage, and has made a poor woman of her, dependent upon charity. "I am so sick and tired of having her around me all the time I could jump out of the window. I feel guilty when I say that, but I don't neglect her." The mother complains continually of her own ill health and resents the attention given to the child, and indeed, the need for the attention. The mother still dresses the girl, blames the child for her laziness, but seeks credit for herself for so well carrying out her maternal duties.

9. *K.F.* Age, 9 yrs., 6 mos. The patient has not seen her father for seven years. Between the mother and the two children there seemed to be a natural and positive relationship, but the children see little of the mother, and are left in the care of an elderly great aunt and uncle who are busy running a large rooming house. The aunt is an anxious, apprehensive person, and is too keenly aware of her responsibilities to the children. "It isn't as if they were my own." The children have been trained early to take personal physical care of themselves. They play outside much of the time with definite boundary restrictions, but with adequate leeway.

10. *D.Ko.* Age, 11 yrs., 6 mos. The father wanted a large family in opposition to the mother, and he has assumed much care of the children. "I never knew there was a baby in the house when he was at home." The mother is annoyed by the girl, who is a slow moving child, lacking her own vitality. There is a deep antagonism between the mother and the daughter, and the mother freely admits her resentment against having the child. The mother still dresses the girl. She clothes her in silks and satins, thus setting her apart from her fellows. She is apprehensive about the girl, her social contacts, her later sex adjustment and moral hazards. While the child's presence in the house all the time leads to friction, the mother is equally tense when she is playing outside.

There are two older brothers and one younger brother. Between the boys and the mother there seems to be a vigorous and healthy relationship.

11. *L.S.* Age, 11 yrs., 6 mos. Both parents are greatly interested in the education of their girls. The father spends much time with them and encourages their cultural interests. The mother states: "I did everything possible to make them people—to have them go to college." The child next to our patient, seven years her senior, was the only slender and good looking one, and the most intelligent of the four girls. She died of rheumatic heart disease at the age of 18 (a year before the patient was seen). During the long illness of the sister and after her death the patient found little attention. "I did not notice Laura. Suddenly she got big during that time." She compares unfavorably with this brilliant girl. Remarks like "She is not alert"—"She is slow in her thinking" are given as description of the difference without intention of belittling the patient. As the youngest in the family "she was used to four other women waiting on her."

The older sisters are even more concerned about her than the mother. They are ambitious for her and feel insulted that she does not progress fast enough in school. The patient was always bigger than other children. "Girls of her age are mean to her. We used to make her nice and arrange things that she had friends." The sisters continue to take care of her clothes and to give her a bath.

The mother has always been afraid of moral hazards and kept her girls in fear of what men might do to them. As a consequence the patient refuses to play on the street. The mother says that now she begins to believe that too much virtue is not good for a child.

12. *A.C.* Age, 11 yrs., 6 mos. The patient grew up as the only child in a large circle of adults, all of whom took a protective interest in the child. The older sister of the mother lived in the household, and "was like a mother to her." She was pleased that the child stayed at home so much and did not want to play in the street. The mother hoped that "she wants to run when she is going to be 13" and was not concerned about lack of social contacts until recently. The father continues to "walk with her to school though she could go by herself." The child is more responsive to the father, who is satisfied with her as she is. The mother wants her to be different. She nags the child, and tries to force her to more activity and interests, without success.

13. *L.C.* Age, 12 years., 1 mo. The maternal grandparents had recently come over from Europe and were staying in the family when the patient was born. She was the first surviving child, and grandchild, and was spoiled by everyone. From this period of "spoiling" the relationship has changed to that of open and loudly expressed hostility.

The father's occupation keeps him away and he sees little of the children. He gives in to their demands—"Don't you see she wants to be fat"—and gets along fairly well with them. "I don't know why they should like the father better than me. They don't see him a lot." In his time off he stays at home to be with the children. "He does not even go to the movies."

The mother nags, threatens, and belittles the patient. She often resorts to beating her, but the girl does not respond to her methods of discipline. The mother never says a kind word for this child, except to relate that her fat, rosy-cheeked baby had been the envy of her neighbors. She wants her children to have nice figures now so that they will be more acceptable and will get married. "If she stays like that I will have her on my hands the rest of my life." The girl has not been too carefully guarded lately. In fact the mother says that she would like to see her get into enough trouble so that she will be sent away by the courts.

Any active treatment is an added source of friction between the mother and the child. More than in any other case has denial of food and refusal to follow the diet been used as a tool in the bitter battle between mother and daughter.

The patient has two younger sisters. The older of these makes a show of her good qualities, and ingratiates herself with her mother. The mother shows her preference by stuffing this child with cake and ice cream which are denied to the patient, and who in turn hates this sister and would like to kill her. The younger sister is four years old. She is equally as obese as the patient and the mother has as little affection for and control over her.

14. *D.Ka.* Age, 12 yrs., 6 mos. The father died when the patient was two years old. The mother and her two children, a boy then six years old, returned to the home of the maternal grandparents. The grandfather died three years ago. He was kind to the patient and treated her with understanding. The grandmother is a true matriarch, domineering and demanding, with Old World standards, and no knowledge of English. She is overcautious of the patient, and objects to any liberties such as going to the movies or playing outside. The physical overdevelopment of the girl and the immature mentality justify this protection to some extent. Several aunts live in the same apartment house and there is close intercourse between members of the family. Some relative is constantly yelling at the girl, and there seems to be no central authority to which the child can respond in confidence and find security.

The mother works long hours outside the home and in addition she does more than her share of work in the home. The patient has tried to help her mother in the household, but without recognition. "Of course I have to

do everything over again." The mother says that she realizes that nothing will happen to the child when she is under the grandmother's care, and this is important to her when she is away from home all day. But she also recognizes that the child suffers from suppression of freedom.

15. *M.H.* Age, 12 years., 6 mos. The father regards himself as a philosophical person and would accept the difficulties of the children with a shrug of the shoulders. "All children have fears and nightmares," referring back to his own childhood. He is annoyed by the patient's numerous symptoms, all of which he relates to her greedy eating.

The mother has kept the child closely dependent and did not foster in her a sense of responsibility towards self-care or towards the family. The migrainous headaches and vomiting arouse the mother's sympathy. She states that she had "the same" complaints when she was younger. Lately she has been annoyed by the child's dependence, as she wishes to feel free to move about without having a crying baby to leave at home and possibly a sick one to return to.

The patient has an older sister and a brother. The recent engagement of the sister to a wealthy and talented boy has so pleased the mother that the patient has been given less attention than previously.

16. *J.F.* Age, 13 yrs., 8 mos. The father comes homes late and sees little of the children. He takes an interest in their educational progress and is proud of the good school work of his daughter.

The mother complains that the patient is fresh to her, is lazy, does not help at home, and does not clean her room or fix her clothes. "I must do all for her." The mother has almost no rapport with her daughter and observes with apprehensive amazement her striving for independent development.

There is a boy four years the senior of the patient. The mother's eyes sparkle with pride as she talks of "mine nice boy" who tells her everything, helps her with the housework, and goes out to do the shopping for her.

17. *E.C.* Age, 14 yrs. There has been much conflict between the parents over the rearing of the child. The father is strict and even now refuses to let her go out with other girls after supper. He is apprehensive of moral dangers to the girl.

The mother has recently changed her way of handling the child and has encouraged more social contacts. She realizes now that it was a mistake to have only one child, and that "she missed something by being alone." The girl is bashful and does not show much affection. "She has a little inner life of her own we do not look into." The mother respects this, but feels easily "shut out."

The maternal grandmother was mentally sick and was in an institution." The mother went every week to visit her and took the patient with her, though the child disliked being in the company of the old woman even for a short visit. The mother felt that it was her duty to take the only grandchild to her mother, and forced her to go. The grandmother died when the patient was nine years old.

18. *I.V.* Age, 15 yrs., 4 mos. The father has a real devotion to his daughter. While he is hurt by the mother's cruelty to the girl, he is ineffectual to do anything about it. He was alcoholic for a time, but once he came home drunk and gave the child a severe fright, and from that day he gave up alcohol.

The mother works, and at present all the home responsibilities fall upon the patient. The girl is blamed and condemned by her mother for her best efforts. The mother goes into hysterical panics when her daughter is away from home with fear that some physical harm has come to her. This has always been true and the mother bitterly resents her inability to throw off this feeling, and the inconvenience and money it has often cost her to see the

girl. And then she is enraged against the child that something hasn't happened to her, and thereby given the mother relief from her burdens. The mother expresses exaggerated fears for the girl's moral safety. "If she ever goes wrong, then I would turn against her."

19. *H.D.* Age, 3 yrs., 8 mos. The father resented having this child, blamed the mother for his obesity, and gave him little attention. Through the advice of the clinic he has taken some interest and has entered into active play with his son, and this has been of benefit both to the child and to the home environment. When an appointment with the father was being arranged the child suggested that one should not go out with his father because "he might hit you."

The mother is insecure with the child, who has frequent temper tantrums emulating the father's behavior towards the mother, kicking and hitting her. She displays a real fear of him and consequently gives in to his demands. She will sit for hours on his bedside holding his hand when he cries for her during the night. Also the relation with the child is influenced by her need of approval from her husband and sisters. She was advised that nursery school would be helpful for the aggressive child who had no adequate facilities to use his drive constructively. She appreciated the advice but would not consider it. "What would my sisters think if I couldn't take care of one child myself?"

The child is young and still requires supervision and help. But he is not being trained for self-dependence though he has a strong drive to do things for himself.

20. *H.B.* Age, 6 yrs. The household is dominated by the paternal grandmother and arrangements are made according to her needs and wishes, and not as indicated by the well-being of the children. She is annoyed by the patient's restlessness and constantly nags and corrects him. But she gives in to his demands—"it makes her happy to see him eat"—and she is the only person to whom the boy shows any affection.

The father takes evening courses and sees the children only during the weekend. He is concerned about the patient's restlessness and mannerisms, but feels that he has been improving lately. He is the only one who can manage the child successfully. The father is unusually objective and detached when talking of the boy.

The mother has always been greatly devoted to the child. He was seriously sick when six weeks old, and it was feared that he might not live. She feels that this may have caused her to take even more trouble with him, especially to overfeed him. She continues to dress him and to give him all personal care and she takes him up every night to prevent bed wetting. After the age of three the child, who had been normal and active, changed suddenly, suffered from fears, lost the coordination of speech, and became generally restless. Both parents speak of a "shock," but are at a loss to explain what happened to the child. The mother has been afraid to let him on the street alone to play, because of his aggressiveness towards other children. At the same time she fears that the other children may hurt him, and that she has to keep close watch over him.

The patient has a brother three and a half years younger. When this child was a baby the mother would not dare to leave them in the room together for fear of what Herbert might do to him. Now the younger child takes advantage of the "good heartedness" of the older brother, who gives in to all his demands. There appears to be no preference in the attitude of the parents towards their two children, though the older one, the patient, makes the greater demands for attention.

21. *L.B.* Age, 6 yrs., 8 mos. Between the boy and the father there appears to be affection and confidence. In discussing the boy the father is direct,

frank, and expresses the sentiment that a child must be left alone to find his own way. Yet he recognizes limitations which must be accepted to insure the safety of the child. But the father does not play a determining rôle in the family, for the mother will tolerate no advice or interference from anyone on the handling of the boy.

The mother is jealous of the father-son relation. Also she expresses jealousy of the high regard in which the boy holds his teacher. She meets this by over-doing for him as if she made an effort to buy his love. She wants his love, and feels that she must give something to win it, and food and overprotection are her gifts. She would not want to hold him to a strict diet, for she could not bring herself to deny him food.

She complains that he is a coward and unable to defend himself and that he is not like other children of his age. Yet her need is to have him remain dependent, the only basis she knows to secure her relationship to him and she complains against his development and transition from a baby to a boy. She openly expresses her regret that he was not born a girl.

22. *J.Sch.* Age, 8 yrs. The father is reported as having infinite patience with the children. He also is slow in speech and movements. He does their school work with them, teaches them music, and makes such contributions as he can to their personal development and enrichment.

The mother complains that she is "too nervous" to enjoy her children. The father takes over the care of the children when he is at home, and the mother uses what slender funds they have for recreation to go out "and give me a little relief." The older child, our patient, creates tension in the mother by his mere presence. But she has so conditioned him to fear that he rarely goes outside the apartment. When the boy was eight years old he was sent to camp for a few weeks to give the mother a vacation. She was so disturbed suffering from visions of him as dead, wounded, or lost in the woods, that she found no relaxation in his absence. The mother attempts to discipline the children through beating and threats to them, mainly of desertion, or leaving them at the hospital.

Any active treatment advised for this child, such as muscular exercises, is an added source of tension. The mother leaves the child no independence to carry out directions for himself.

The patient has a brother of four years. He is more self-reliant than his brother and plays outside with other children much of the day. "If he were like Jackie, hanging around me all the time, I would just completely lose my mind."

23. *L.R.* Age, 8 yrs., 2 mos. The father takes little interest in the child, but displays the attitude that he is something that the mother wanted. He does reserve the right to criticize and blame the mother for her handling of the child.

The mother wanted the child to be a girl. "A girl stays close to you." At present she is much disturbed that her child develops "like a girl." She feels that he lacks masculine aggressiveness and his play is quiet and without drive. She complains that he is unable to defend himself and to find a place for himself with the boys on the street. The mother is confused by the child, and appears tired and worn when she speaks of him. He has little freedom in the house for fear he will mar the possessions. "He goes around touching things just to spite me," the mother complains. She relates that she has to do everything for him, dress him, feed him, take him back and forth to school.

24. *J.O'C.* Age, 8 yrs., 4 mos. The father is tender and gentle with the children and gives them much care that usually falls upon a mother. He takes them on trips and finds real satisfaction in his association with the children. He was overcautious with the patient after an operation, but cooperated with the clinic, and tries now

in every way to encourage the boy in active play with other boys.

The mother says that she often feels that she is mean to her children when she is "nervous", but that she cannot help this. She overprotects her children, and wards off growth and independence. The patient is still dressed by his parents, and they refer to him as the "little fellow." The boy is forbidden to fight with other children. His mother emphasizes his goodness, his love and affection for her, and above all his innocence and purity.

The patient has one sister, two years his junior. The two have a normal basis of congeniality. The mother was advised that she must extend to this girl more freedom and opportunity for independent development. "And I never knew I was that way with her." The mother is insecure with her children, and when she relates something about them she will often add: "You can ask my neighbor."

25. *W.O'G.* Age, 8 yrs., 10 mos. The father has an almost exaggerated interest in the details of the development of his children. He feels himself excluded from the life of the patient, his oldest son, and finds no emotional response from him. He is seeking a basis of comradeship and gives much time and effort to the patient. But he also shares his wife's suspicions of the boy.

The mother gave much attention to the child when he was a baby. She fed him every time he cried, fearful that he would disturb the neighbors. "I ruined his stomach." When describing her handling of him for his aggression towards his younger brother, she remarks uneasily: "I broke the heart in that child." She complains of the strangeness of the boy. She is suspicious of him and searches his pockets every night. He likes to carry matches and she fears that he will maliciously burn down the house. It worries her that he stays too much in the house. But if he stops for a while on the way home from school to play, or comes from the wrong direction, the mother, watching from the window, upbraids him and demands an explanation.

Because he is a reliable child he is often entrusted with the care of the younger children, and assumes responsibility. The mother expects his help with the housework and lets him do much of the shopping for her. When he is carrying out the wishes of the parents they appear to trust him fully, but when he seeks some life of his own, they feel that he is not to be trusted.

There are three younger boys in the family. The next brother is an active and affectionate child and the declared favorite of the father who calls him "Lightning." The third child is crippled and mentally defective and the youngest is still an infant, both needing much attention and supervision from the parents.

26. *D.B.* Age, 10 years. The father plays an insignificant rôle in the life of the family. The mother would make no gesture towards obtaining any cooperation from the father.

The mother said that her concept of a baby was that of a doll. And she still acts like a little girl as she dresses this huge boy, and stands back to admire the perfection of her work. "I love babies, not exactly that I hate older children." She has promised the patient that when he is 12 years old he may take a bath alone. She fears that he will fall but would not consider the advice of placing a rubber mat in the bath tub. Over her hangs the apprehension of death for the patient. She still walks with him to school and holds his hand as one holds a baby learning to walk. The boy is not allowed to play in the park or associate with other children. But when she considers their future she remarks: "My children must choose their own lives, I would never think of interfering with that."

Her method of discipline is to threaten to go away and never return. She sees only affection in the desperate clinging to her of the boy, begging her not to go. She portrays him as a per-

fect child, and perceives no problems in her boy. She resents the interference of the school when they draw her attention to his immature behavior.

The patient has a sister five years younger. She is an independent little girl and the mother seldom speaks of her.

27. *H.Pe.* Age, 10 yrs., 6 mos. The father shows great interest and affection for his children. When they were small he would spend days in the park with them and now that they are older he enjoys their companionship. But he is oversolicitous of them and fearful of physical and moral hazards. "When I know he is in the house and safe I can go on with my work. When he is outside I cannot do my work well for worrying that he may get hurt." He beats the boys for punishment and often the patient will refuse to talk until he has extracted a promise that he will not be whipped. The word of the father to the children can be relied upon.

The mother is extremely domineering and aggressive towards the patient. She displays some affection when she talks of him. When he is in her presence she loses her poise, speaks in a shrill, harsh voice, and becomes violently antagonistic, blaming the child for every gesture he makes and slapping him constantly. She criticizes his appetite but at the same time prepares unlimited quantities of good food for him, which really gives her pleasure. She will not let him go to the bathroom alone for fear that he will masturbate. She is proud of his innocence. "I don't want them to know about sex and such dirty matters." She still dresses him, and although he has always been exceedingly modest, she continues to give him baths without respect for his embarrassment. "I feel I can give him a better rubbing to make him really clean."

"I would not trust him," is the leitmotif in her relation to the boy and he is given very little freedom. He cannot whittle a stick at home—he might cut his finger, and he would certainly soil the floor. Until the past year the mother took him back and forth to school. She feels that when he is in the movies he is removed from physical dangers and is also out of her way for four hours, hence he is allowed to go almost every day. She is not concerned with the fears that some pictures provoke in the child.

In spite of her overt aggressiveness and violent complaints against the boy, she is insecure in her dealings with him and she interrupts her flow of words by exclaiming "I know it is all my fault" and "Maybe I am to blame."

With the older boy both parents have a natural and pleasant relationship. He is given responsibility and trust and is respected as a person capable of a life of his own, and he is accorded a place in the home which gives him both self-respect and confidence.

28. *St.F.* Age, 10 yrs., 6 mos. The mother reports that the children boss their father and complains that he is unable to discipline them.

When the mother talks of the patient it is with tenderness and feeling, but when the two are seen together there is antagonism and almost complete lack of rapport. She cannot control him and he is defiant in his victory over her. She complains that she finds no response from him. "Only lately have I been able to make him cry when I beat him," she says with satisfaction, as it represents almost the only emotional response she has had from him. She hovers over him while he eats, and picks out choice pieces of food, and is happy when he takes more of the food she has so carefully prepared for him. But she trembles when he makes demands for food she does not have, and quickly gives him money to buy these things.

He was bathed and dressed by the mother until he was ten years old. He objects to such personal care from her now, so she allows him to put on his underwear alone, though she still aids

him with his bath. She defends this on the basis that if left to himself he would never be able to get to school on time, and that it is her duty as a mother to help him. She keeps him at home until the school line forms. She took an apartment in the same block with the school so that he will not have any streets to cross.

The patient has one brother seven years his senior. This boy was not seen. He was markedly obese until adolescence. The mother declares that she prefers this older child to the younger as he is more responsive to her and extends to her little personal kindnesses. The brothers seem to get along together fairly well.

29. *F.B.* Age, 10 yrs., 8 mos. The father works at night. His afternoons are free and he spends them often with the patient in the park. He has a pleasant, matter-of-fact relationship with the boy and does not appear to share the apprehensiveness of the mother, though he does not have any influence in breaking down her fears.

The mother has a collection of work the boy has done, such as school work and drawings. She displays a sort of pathetic indulgence when she exhibits these. But when she talks of him as a person it is in terms of her own broken health and of her personal sacrifices, and with a total lack of joy or pride. She gives him the best room in the house, spends hours preparing his food, and devotes her life to ministering to him. "You see I give my Francis everything." In the next breath she may say: "I *beat* him" and complain that this punishment is so ineffectual. Once she rushed him to the hospital in a state of hysteria when she thought that the child had swallowed a nickel. The nickel was found enmeshed in his clothes instead of in his stomach. "How I beat him for the scare he gave me." This incident is typical of the mother's handling of the child. All of his life she has kept him close to her, walked to school with him, watched him at play, mashed his food as she did at infancy, kept check on every bowel movement, slept in bed with him till he refused to sleep with her longer.

30. *A.Hi.* Age, 11 yrs. The father is reported as openly antagonistic to the older child, a daughter. He has overemphasized his devotion to the boy as a gesture of defiance to the mother. The mother has always rejected the boy. She feels that her husband and the patient have only disturbed the exclusive life which she wanted with her daughter. When the patient is in her presence she loses her poise, is irritable, jumpy, and without composure. But she is afraid to let him develop a life for himself outside the home. He cannot go to school until the line has formed, is not allowed participation in scouts and other organized group activities for boys, and then she blames him for his poor social adjustment. He never was allowed to play with a child before he was six years old and the mother prides herself on the exclusiveness of her children.

He is helped with his dressing, baths, is taken up every night for the toilet, and his clothes are adjusted by the mother before he goes out. She constantly nags and hurries him. She is never satisfied with his school achievements and is not open to advice that she has pushed him beyond his mental capacities. She sends him to Hebrew school against his protest just to make him "learn more."

The patient has a sister ten years his senior. The mother sparkles with pleasure when she talks of this girl. "She is the delight of my life. Arthur brings me only sorrow." The sister assumes a maternal rôle towards the patient, and he relies on her help for his school work.

31. *H.L.* Age, 11 yrs. The father is critical of the boy. He speaks of him in a detached and unemotional manner. He resents his phlegmatic behavior and his lack of cultural interests. He prefers the younger, more active boy, and tells the mother: "This is *your*

son," when speaking of the patient. He did not see much of the child when he was small, but he objected to the mother's way of rearing him, especially that she kept him so closely dependent, and always forced food upon the boy.

The mother herself speaks of this time: "I was a really crazy mother." She continues to cater to his whims and preferences especially concerning food. She dressed and bathed him until recently, and continues to help him as he is so awkward and slow. She constantly nags him, and rushes him in everything he does. She resents that he is "funny" looking, especially that he is red-headed, and that there is nothing in him of which she can be proud. At the same time she is indulgent and is pleased that he would "rather stay with his mother." When he was small she did not let him play with other children, "He was always walking with me"—and for the last few years they have been living in a neighborhood from which she would like to keep her children aloof.

The second boy is five years younger. He is fast and active, "an entirely different child." The two brothers quarrel, probably not more than is usual, and the older one, the patient, always gives in to the demands of the younger boy.

32. *B.F.* Age, 11 yrs. This family lost the oldest son in a street accident a year before the patient was seen. The mother is so completely wrapped up in her mourning that she "feels guilty if she does not remember her grief for a moment." She resents a smile on the face of any member of the family. The patient gained forty pounds in the year after the death of the brother. He always had been treated like the baby of the family, and the older brother was the mother's confidant. Since the accident the mother has been living in constant fear of losing him also. She keeps him close to her and will not allow him to have friends or to take part in any activities.

Her overconcern for the patient was so marked that the relatives felt that she was destroying the boy, and they "just made her have another child." A baby girl was born about two years after the death of the oldest boy. The mother takes a new interest in life, but has not entirely abandoned her exaggerated caution concerning the safety of the patient.

33. *A.H.* Age, 11 yrs., 5 mos. The mother reports that the father gets along well with the children, that he gives them the affection and love which they need, and that he would not strike them. The patient made, at one time, the remark: "I'd like to beat up my father. He thinks he's a smart Marine sergeant, but he ain't. He's always got to have his way."

The mother had this child in defiance of medical advice, and her whole relationship to him is one of defiance, combined with suspicion and overprotectiveness. Even when the child was small the tension between him and his mother was so great that the father took him to the Kindergarten before the age of five. He told the school that unless they helped him get the child away from his wife for a few hours a day she would go insane. The patient exhibits many undesirable habits and traits as expression of his maladjustment. The mother complains about them and belittles the patient, but she has always been unwilling to cooperate. "I brought my children into the world and I will guide them." Her method of discipline is to beat him—"she uses a weapon, a belt. I say it isn't fair", says the patient. She also shames him or threatens suicide, such as jumping off the roof if he does not mind. She is sensitive to any criticism of him and frequently dashes down to school to complain of the treatment given him. The principal of the school remarked when he saw her on her last visit: "Well, is mother back with the baby again?" She let him sleep in her room until he was ten years old, and his bed stood so close to hers that she could

touch him when he talked or moved in his sleep.

The patient has a sister, four years his senior. The mother does not express such an exaggerated concern over her daughter as over the boy. There is no unusual friction between the two children.

34. *H.M.* Age, 11 yrs., 6 mos. The father sends the boy to his parents' farm every summer and has him do heavy work. He feels this is normal and healthy and far better than drawing attention constantly to the boy's size and development. The child and the father are similar in build.

The mother has encouraged his activity in feminine rôles, cooking, cleaning, weaving, and delights in his adaptation to them. She constantly belittles him both when he is present and when he isn't, but she sincerely believes that it is part of her nature to suppress expression of emotion.

Though the boy is oversize for his age, he usually plays with much younger children. "I have got my head out of the window all the time to see what he is doing; only *one* you know." They live in a first floor front apartment, and she can observe him most of the time, as he rarely leaves the block.

35. *M.M.* Age, 12 yrs. The father sees little of the child. He works at night, and often on Sundays, and his hours are such that he is asleep when the child is at home from school. The boy complains about it, but the father feels that he cannot adjust his hours differently.

"He is the only one," the mother says, and excuses all of her fears for his safety on this basis. She has never wanted another child. She cannot bring herself to give him freedom adequate to his years, despite his pleas for it. She is distraught with fear when he is out alone and paces nervously up and down the apartment until he returns. At the same time, she constantly belittles the child, complains that he cannot play with other children, that he is a cry-baby, that he cannot ride a bicycle, *ad infinitum*. She says that it breaks her heart to see him shrink from other children in the school yard.

She cannot discipline him but rather allows herself to be controlled by his temper tantrums. He irritates her so much that she yells and screams at him. His slow movements in dressing make for friction every morning, and the result is that she dresses him when her "nerves are at the breaking point."

Though they have a large and spacious apartment the child is given no place of his own. The maternal grandmother who lives with them receives those considerations which rightly belong to the child.

36. *F.M.* Age, 12 yrs., 6 mos. The mother reports that the father is greatly devoted to his children. "The father is more interested in the children than I am. He is crazy about them." When the patient was a small child the mother had to go to work and leave him in the care of her mother, who was very cautious with him and gave in to all his demands. The mother herself continues to dress him and to do everything for him. Only lately has she allowed him to bathe alone.

At the same time she complains about his shortcomings and is irritated by his slowness. She pushes and hits him to make him do things faster, and corrects and nags him constantly. She feels that other mothers are happier with their children. Whenever she sees a successful young man she stops to say "what a happy mother this boy has," thus trying to instill some ambition into her own slow and phlegmatic son.

But if anyone says a word against him she considers it a personal insult. This is especially true with regard to the school, and she rushes down to the school to complain of any injustice or lack of recognition of him. She is completely wrapped up in her son and has fostered his many physical complaints. "When he is well, I am well; when he is sick I am sick." She is insecure in her

relation to him as well as to other members of the family. When she blames and belittles the boy she always adds: "I think it is my fault," "Maybe I am to blame." She admits that she never gave him a chance to develop self-dependence.

The patient has a sister three years younger than he. She is an active intelligent girl and fulfills the ambitious demands which the mother makes. "The girl is perfect. That's the way I bring them up."

37. *St.Sp.* Age, 13 yrs. The father strikes terror in the heart of the patient by his threats of suicide. He condemns the dependence which his wife fosters in the children, but his own lack of security leaves him helpless to combat it.

The mother feels that she neglected the patient when he was a baby, as she then lived with her mother who was in her last illness. Between her and the patient there is warmth and cordiality, but too much emotional dependence from the child. She was still holding the hand of the older boy when he was fourteen years old when crossing a street. She has had some guidance from physicians in the handling of her children, and she has tried to incorporate this in her relationship with them. She has, with real self-control, refrained from leading the younger child by the hand, but has figuratively created the same dependence. When either of the children is away from home she is haunted by visions of them lying on the side of the street, injured and bleeding. The children are allowed to go to camp in the summer, but our patient has been only once, and refuses to return. He is too homesick for his mother, he states.

The interests and talents of the children are encouraged, and there is sufficient money to provide them with material with which to work. The individual interests are promoted at the expense of social development.

The patient has a brother who is seven years older than he. Both children seem to receive equal regard in the family circle and there is a normal relationship between the boys.

38. *H.Pr.* Age, 13 yrs. The father says that he has lost his business and came to financial ruin because he neglected things when the child was ill. He does not offer this information in the form of a complaint, but rather of convincing evidence of his devotion to the child. "I eat only bread and drink water so the child can have the best." Lately the father has not been well. He spends his free time with the child and attempts to foster some independence in him. "I just realize I won't live forever to look after him." He is trying to obtain a civil service job for the boy so that he will be taken care of. But with the father as with the mother the child is used as a tool for family quarrels. The father has set ideas about the boy and the mother is unable to break these down.

The mother will declare: "He is our life" and in the next breath say: "He has ruined our lives." She lives in terror of an illness in him, but when his behavior irritates her, she says: "I could *kill* him" and clenches her fists. She rejects the child and in turn resents his preference for his father. She refuses to cooperate with medical advice aimed at the child's independence. She cannot accept the thought of any loss of weight in him, as this would indicate that he is not properly fed, when actually she makes every sacrifice so that "my Howard can have the best food there is." But she is not happy when she has to eat scantily in order to do this. She continues to dress him, and even goes on her knees to put on his shoes and socks. The boy is coaxed to go to the bathroom for each bowel movement, and frequently receives enemas and laxatives.

Until he was seven years old the mother pushed him in a baby carriage and carried him in her arms up and down stairs. She says that he had a "weak heart" (not confirmed by repeated examination). She would never

consider letting him go alone to the park for she is sure that he would be overtaken by sudden and violent death. She has "seen so many children killed on the street." She has watched him play on the street until recently. The father demanded that he go out alone. She still feels convinced that he will be killed, but when it happens it will be the father's fault—another blame she can cast upon him.

There are no other children. But the mother has raised a rubber plant simultaneously with the patient, and has given it the same care, even to milk and castor oil regularly. The silent, motionless growth of the plant is a more satisfying reward for her devotion than the maturation of the son who strives away from her.

39. *J.P.* Age, 13 yrs., 6 mos. The interest of the parents in their five children is constructive and stimulating. The household is well organized, and each of the children has a share in the responsibilities. Outside contacts and activities are encouraged. The father expends much time in common interests with his children. The mother feels that she was inadequate to give proper care to her family, especially to the patient who was still an infant during the period when she was emotionally upset after the death of the next youngest child. Although the parents are unwilling to admit it, the patient has received more attention and consideration than the other children, and there has been exaggerated concern over his health and progress. The patient has been sent to private school while the other children are going to public school, though they are all equally bright children.

40. *G.Th.* Age, 13 yrs., 6 mos. The father has often spent his free Sundays taking the boy to the park and in this way taking part in the development of his son. Until recently the father and son have slept together. The father objected pathetically when the mother effected a change. The mother regrets her rôle as a mother and says frankly that her children are a burden to her from which she feels she can never escape. She complains that she has been a sick woman since the birth of the patient. She constantly keeps this before him and as a consequence makes many demands on him. Her frequent lamentation that she is dying provokes a despondency in the boy which keeps him near her bed. This she interprets as affection despite the father's objection that she is tying the patient to her "with a bond that even death can't break." She delights in such remarks from her husband and thinks that they are indicative of jealously.

The children have both been reared to take responsibility for themselves and have been allowed a normal range of activity. But this spirit has been fostered to spare the mother rather than to develop the child. She instills fear in her effort to control her children and has no hesitancy in lying to them. "George is getting too grown up, but I guess I can take it," the mother complained when the boy made efforts to become more independent with the encouragement of the clinic.

The patient has a sister two years his senior. There has always been friction and fighting between them. The mother and daughter are bitterly antagonistic to each other, and the patient complains that the sister is not kind to the mother.

Attitude Towards Health, Obesity, and Food

COOPERATION

The purpose of a separate discussion of the problems relating to obesity and sexual maturation, food intake and cooperation is to emphasize the practical importance of the attitude of the family to the development and treatment of obesity in childhood. It is obvious that the attitude towards these factors represents only one aspect of the relationship to the child which was discussed in the previous section, and the separa-

tion is arbitrary. A short note on the course of the obesity in the children has been included. We regard the development of obesity as one form of the child's response to his environment. Although the various expressions of the children's reaction will be reported in a separate article, this factor has been mentioned here in order to illustrate the relationship of obesity to environmental forces.

That such a connection exists can be best demonstrated in cases where a rapid increase in weight occurred after some upsetting event in the family circle, such as the death of a member of the household. In one instance (case 14) the patient became obese after the death of her grandfather. He had been the only person to whom she could turn in confidence and find secure and kind guidance. In two other instances (cases 11 and 32) the rapid increase in weight followed the death of an older sibling who had been in both families the favorite child. The mothers, wrapped up in grief, reacted by completely withdrawing personal interest and affection from the surviving children who, in their eyes, had value only in so far as they could replace the beloved dead ones. One mother said she did not even "see" the patient until after she had grown obese. The question of why the children responded in this way cannot be discussed at present. The purpose of this paper is to demonstrate that forces influencing the development of obesity can be recognized in the environment.

From a mechanical viewpoint treatment of obesity constitutes a simple problem. Restriction of the excessive food and increase in the muscular activities results in a proportional loss in weight. The difficulties of therapy lie in the unwillingness or inability of the patients and their parents to cooperate with such a program of treatment. Obviously uncooperative and antagonistic patients were included in our survey with the purpose of gaining a broader insight into the factors which influence cooperation.

The best cooperation was observed in patients of adolescent age (cases 11, 16, 17, 32, 36, 39, and 40) who could be weaned from the close dependence on their homes. Their emancipation aroused not infrequently alarm and bewilderment in their elders. In other patients of the same age period in whom the mutual hostility counteracted all efforts very little could be achieved (cases 13 and 18). Refusal to follow a restricted diet was used by one patient as a weapon to defeat the mother's purpose of making her daughter slimmer in order to get rid of her more easily (case 13).

A fair degree of cooperation was observed in eight other families. The necessity of dealing with the mothers as well as with the patients complicated the problems. Some mothers readily acknowledged the necessity of changing the daily routine of their children but were not willing to see the need of a change in their own attitude. Thirteen patients who professed some interest in treatment were quite irregular in their clinic attendance. They frequently reappeared when some acute disorder, quite often exaggerated minor ailments, called for attention. The remaining twelve patients had been sent for examination but were not interested in any change of the situation.

There were several reasons for this high incidence of refractory patients. Obesity in childhood was found to be a condition which very rarely aroused the interest of the family. Few complaints were directly referable to the burden of weight. The appearance of the child and his personality difficulties gained their importance only in relation to society outside the home.

In only one family (case 19) had the

obesity of the child played a direct rôle in the family interrelationship. The father charged his wife with having given birth to an abnormal monster and used this as a reason for his rejection. Reassurance as to the normality of the patient produced a beneficial effect in the family life.

In all other instances the parents had not recognized the unusual size of the child as excessive until their attention was directed to it by outside sources or by the social implications. Two mothers (cases 5 and 8) persistently denied the presence of obesity, although the children were approximately 70 per cent overweight. Fifteen parents stated that they brought the children only because the school urged them to. Several resented the interference and presented the children for examination only in order to show the school authorities that they had complied with the request.

The parents who wished for a correction of the condition were prompted by various reasons. Many resented the ungainly appearance of their children and the fact that they could not be proud of them and show them off. When the children were younger their chubby appearance had been an asset, and mothers who now loudly berated the ugly figures of their children still sparkled with pride (and even spoke with tenderness and affection about them) when they recalled the neighbors' envy of the fat, rosy-cheeked babies. Many complained about the high cost of oversize clothes, in contrast to the willingness to spend money for inordinate amounts of food.

In older girls the fear that the unshapely figures might interfere with their appeal for men and their prospect of getting married entered into the picture. Some mothers constantly emphasized the lack of attractiveness and thus aggravated the problems of the girls. In other instances the physical overdevelopment of girls who appeared to be much older than their age was recognized as a difficulty and moral hazard. Otherwise there was little apprehension concerning the sexual development of the girls. The diagnosis of an endocrine disorder had been made in many cases and the parents anxiously inquired whether their children were abnormal. In one instance (case 14) the mother had been told by her physician that her daughter would possibly never menstruate, and she was seriously concerned, but open to reassurance.

The problem of sexual maturation was of outstanding importance in dealing with the parents of obese boys. The erroneous concept that obesity and sexual maldevelopment are allied symptoms is so popular and prevalent amongst physicians and lay people alike, that a question concerning this point was raised in each instance. It must be stated that no patient of this group showed signs of sexual maldevelopment in a physical sense, though psychologically dependence on the mother has a connotation of sexual retardation. Twelve mothers were seriously confused and disturbed after this diagnosis had been made before they came to the clinic. The fear that the boy would not mature normally provoked marked anxiety coupled with feelings of guilt as so many mothers definitely had wanted their boys to be girls, or had given them the place of a daughter in their emotional life and reared them accordingly. It is as if they feared that their wish that the boy be of another sex had become a reality, that he would never be a "real man", and that they themselves were to be blamed. At the same time they were afraid that the boys would mature and thus grow away from them. Objective reassurance could help little in some instances when the panic and confusion

activated one of the basic conflicts in relation to the child. Some mothers pleaded for active glandular therapy, or took the patients for injection to an outside physician. The problems, however, were not alleviated by this kind of therapy. In some instances it only served to confirm the impression that the children were abnormal, and the mothers considered it one more of the misfortunes under which they suffered

The diagnosis of an endocrine disorder, though incorrect, was of importance in other aspects also. Except for activating conflicts over the maturation of the children such a diagnosis was in agreement with the general attitude of overconcern. Like other physical disorders the diagnosis seemed to justify the excessive care and attention given to the patients. In contrast to the indifference in regard to obesity many parents were greatly concerned over other aspects of the child's health and were easily upset by acute disorders. In some instances when patients were seen only at the time of follow-up visits the mothers would talk at length of how sick the child had been for the last few days, how his cough (or whatever symptom) had disturbed her, and they could be induced only with difficulty to report about the general progress of the child. If, however, the condition of the child required repeated visits to the clinic, such as asthma (cases 5 and 32), the mothers were equally uncooperative as in the treatment of obesity. They would claim that they were too sick themselves to bring the patients (but would not trust them to go unaccompanied), or that the treatment was too expensive, or that they could not keep the children away from school. Physical complaints and disorders were attended to according to the nuisance value which they represented for the mothers and not in relation to the child. Enuresis, which was observed in 40 per cent of the patients, was considered the mothers' problem in regard to the responsibility and incumbrance.

Many parents were quite ready to accept the diagnosis of an endocrine disorder. It afforded such a convenient basis to explain all the peculiarities of the children and appeared to promise a simple treatment. A few pills or injections would change the clumsy and fat patient into the child of their ambition. Once parents had convinced themselves that "bad glands" were the reason for all the shortcomings it was exceedingly difficult to make them understand a different approach to the problem. The diagnosis of an endocrine disorder in obesity is not only incorrect, but harmful in so far as it increases the apprehensive and oversolicitous attitude of the parents, misdirects their attention and blocks the way for recognizing the underlying psychological problems.

Among the inner factors inherent in the conflicts within the family group, the high emotional value with which the offering and receiving of food has been invested constitutes the main obstacle to successful cooperation. The offering of food represents often the only way in which the mother can express her devotion and it gratifies the child's demands for affection. Restriction of food signifies withholding of affection and as such endangers a precariously balanced relationship. The fear of not being able to hold the child's love prevents the mother from following advice. To gain her constructive cooperation it is necessary to allay her anxiety and to help her find new ways of giving affection and emotional security to the child.

The reported investigation has been conducted for the purpose of disclosing environmental factors which have contributed to the development of obesity in the child. The aim of the study has been to establish a basis for a better ap-

proach to the treatment of obesity. Intimidating and disciplinary measures are not satisfactory and are definitely detrimental in a number of cases. The good therapeutic results with patients in whom a satisfactory contact could be established indicate that a psychotherapeutic approach, in combination with judicious medical advice, represents a helpful and in many cases the only successful way of treatment.

1. *Z.F.* The parents welcomed the rapid increase in weight as an indication of good health and "most marvelous appetite." The obesity was considered a problem only after the mother began to consider it an insult to have such an ungainly daughter. The weight of the patient has become the object of much discussion, to such a degree that the child cries whenever the word "fat" is being mentioned.

   The mother was unreliable and uncooperative. "She eats just what the doctor tells her and gains weight." Later the child was taken to a private physican who gave her injections twice a week. In this combination the mother cooperated with a diet lower in calories than had been advised in the clinic, with satisfactory loss in weight.
2. *H.W.* The mother complains that she was forced by the school to take her child for treatment. She resents the attention given to the child as she herself is sick and too weary to be bothered. Though she remembers her suffering from being teased about her obesity as a child, she does not consider excess weight a disorder that needs correction. But she is too resigned to resist pressure on the part of the school, and so she follows advice concerning diet and exercises, constantly moaning about the added burden. The child improved physically, but there was little change in her adjustment.
3. *B.T.* The father explains the craving for sweets as "running in the family" and would never consent to a dietary restriction. The mother would like to see her thinner, but "if I do not give it to her somebody else does." As the child grows older the mother tries to give her some sense of pride in her appearance.

   The child was examined on recommendation of the school. Later appointments were broken. The patient would not even come for a follow-up visit, as the mother had too often lied about trips to the hospital.
4. *F.P.* The parents were concerned about the child's "asthma." The patient sleeps in the mother's bed and keeps her awake with heavy breathing. There was never any concern over the weight. The child is jealous about each piece of candy that the mother sells in her store, screams for it, and grabs it if one is not also given to her. No member of the family wishes to accompany her to the clinic—the child is such a nuisance in public places.

   The patient was seen at irregular intervals, whenever some acute problem demanded medical attention. The rate in gain of weight has slowed down.
5. *E.B.* "I cannot forfeit my own health to take care of Elaine" says the mother, speaking of her concern over the child's asthma, and her inability to cooperate with treatment. The mother does not admit that the child is overweight (weight excess of 60 per cent). "She eats just the right things." The mother always stuffed food into the child. No cooperation was obtained.
6. *Th.Sk.* The large size of the child embodies for the mother her own apprehension and concern over her figure. It signifies to her that her daughter will never attract men and marry. Otherwise the parents do not consider the obesity a serious problem for the child. They want to give their children as much as they can—actually more than they have. The mother finds that she can handle a diet if she also refrains from eating what the children are not allowed. The patient was sent for treatment from the school when seven years old. Subsequent appointments

were broken. She has remained markedly overweight.

7. *A.T.* The mother is concerned over the child's fears and nightmares, which she relates to her obesity. "Something is choking her." There are spasmodic, overzealous attempts at cooperation, but they are always short lived. The mother is too detached from this child to show her interest and affection other than by satisfying her voracious appetite. The patient loses satisfactorily during the short periods of treatment, but regains more than she has lost in the intervals.

8. *A.Sch.* The child complains of many aches and pains, imitating her mother's "heart attacks." The mother is likely to get excited over them, depending on the drama of the symptoms. When the child is really sick she does not take adequate care of her, and is anxious to have her hospitalized "to get rid of her for some time." "I am too sick myself to be taking her for treatment." The child was kept out of school for a whole term because of earaches, for which no organic basis could be discovered. The mother is not concerned over the obesity, and actually denies its existence. She will not even attempt to change the food intake.

   The patient has been brought to the clinic repeatedly for a variety of symptoms. The constantly increasing weight does not elicit the slightest interest from the patient or her mother.

9. *K.F.* There is no unusual concern over the children's health, and no one worries about the girl's overweight. The mother was always stout. The aunt emphasizes the quality of the food, "everything the best" and would never think of "not giving Kathleen enough to eat," however much this "enough" is.

   The child was examined on request of the school. Appointments following the initial examination were broken.

10. *D.Ko.* The mother wanted reassurance that the child is physically and mentally "normal." The enuresis is a real problem, but the family never cooperated with the clinic. The obesity is of no concern. On the contrary, the child has always been coaxed and pampered by the mother to eat—still being spoon fed quite often. Few things upset the mother so much as refusal of her children to eat.

    When the child was five years old the accumulation of fat in the mammary region suggested "precocious puberty." This diagnosis was not confirmed. The mother brought the girl for one more examination at 11 years of age. Later appointments were broken.

11. *L.S.* The mother's one quarrel with obesity is that men do not like fat girls. The lack of feminine charm in her girls is her real concern.

    The patient was brought to the clinic because her menstruation was prolonged. The whole family cooperated with a dietary program and the girl lost 30 pounds in six months. Subsequent menstruations were regular. She came for one follow-up examination one year later "just to show how much the hospital has helped her."

12. *A.C.* The school urged the parents to take the child for examination and treatment of the obesity.

    The father thinks "she is all right. She will outgrow it." The mother would like to see her slimmer, but has no control over the girl. The patient says: "I want to be skinny, and I want to eat as much as I like." She keeps appointments fairly regularly, but makes no attempt to follow advice.

13. *L.C.* The patient is tremendously obese. But the parents did not seek advice until the school repeatedly requested it. When the child was younger the parents thought that "it was nice that she was big." When she was two years old she was brought to the clinic because of a "poor appetite." Hospital admission was advised for a study of the already very marked obesity. The mother refused this because her relatives "warned her that the doctors would practise on the child." Their chief concern at present is that "she has no fitting dress" and the father

resents that he cannot "show off with his daughter."

The mother has always used food or denial of it as an expression of her affection or hostility, so that prescription of a diet becomes only an added source of conflict. The patient defies her mother by her refusal to cooperate. Hospital admission was advised. After arrangements were made the appointment was broken.

14. *D.Ka.* The family was frightened by a physician, who said that the girl would probably never menstruate, and they wanted reassurance in this respect. They would like to see her slimmer, but have no control over her food intake. "We all get fat if we eat too much." They are very poor, but there will certainly always be enough for her to eat. The excessive increase in weight occurred after the death of the grandfather. The school recommended treatment for the child. After the initial examination all appointments were broken.

15. *M.H.* The mother is concerned over the thyroid condition (slight adolescent goitre) and migrainous headache and vomiting. The child was always difficult to feed and the mother is apprehensive if the child does not eat "enough." She often feeds this girl of 12 years. Appointments were kept fairly regularly and the patient did not gain in weight during an observation period of two years. The nervous tension and the craving for food diminished after the grandmother left the household.

16. *J.F.* The mother brought the daughter for treatment, of a "glandular" condition, and asks for "tablets and capsules" at each visit. In the older brother the obesity had been treated with injections. The mother continues to voice complaints which no longer exist, and still speaks of "cramps" after the initial menstrual disorders of the girl have improved.

The patient was cooperative for a short period, lost weight, and made an excellent social adjustment, much to the bewilderment of her mother. Later appointments were broken.

17. *E.C.* The mother and the girl grew obese after the death of the maternal grandmother. In the beginning she was really alarmed over the gain in weight. "Now she is growing out of it just as she grows out of a lot of things we thought were bad." The family has met with serious financial reverses, "but I won't save on my table." It is as if the mother retains her pride as long as she serves good and abundant meals.

18. *I.V.* The patient was sent to the clinic on recommendation of one of the clinic physicians (the father was superintendent in his house). The mother feels that she should be paid if she takes the trouble to send her girl for treatment. Her only concern is the price of the girl's clothes. There is never a complaint about the cost of the food to satisfy the voracious appetite of the patient. The mother herself is a fanatic on good meals and is afraid of being cheated in her buying of food. If she has one bite at a meal which does not taste right she throws a temper tantrum. Since the patient does the buying and cooking all the blame is thrown upon her. There was no cooperation with treatment.

19. *H.D.* The mother was concerned over the child's size because of the father's rejection. Overfeeding took place during the first year of life. There was some cooperation in handling the child. The mother never had enough control over the child to be consistent with dietary restrictions. Hospital admission was advised in view of the severity of the condition, but was refused by the parents.

20. *H.B.* The parents are concerned over his abnormal and restless behavior. The mother regrets now that she always overfed him but continues to take him a hot lunch to school. The grandmother interferes with all programs for dietary changes, and the father fears friction if her demands are not fulfilled.

21. *L.B.* The mother's real concern is when the boy loses weight, even though she bring him to the Obesity Clinic on advice of the school. She feels that she is "depriving" him if she does not pamper him with food. She remembers food as a major factor in her relation to her own mother, and she was many times hungry after her mother had been killed.

22. *J.Sch.* "My health is so bad that I am took sick to be taking him to clinic" says the mother. All the members of her family tend to be fat, hence she is not concerned over the weight. She is always worried when her boy does not eat enough, and she is really alarmed when he loses weight. "I am happy if he eats a lamb chop and a few vegetables," and the effort to make him eat is just another of the mother's burdens. "He is so good hearted. He wants to buy ice cream so that the grocer will make money." The appointments in the Obesity Clinic were broken. But there were numerous other physical complaints which greatly aggravated the mother, and the patient was seen frequently in the General Pediatric Clinic. She has been frightened so often about his "sexual maldevelopment" (each time when she calls in the family physician) that nothing can alleviate her concern in this respect—just another of her misfortunes.

23. *L.R.* The mother uses the fact that he has a heart murmur as an excuse for overprotection, and talks to the child about his "weak heart." She complains much of their poor financial conditions, but takes the boy regularly for glandular injections, after having been frightened about his "feminine development." She has made the child so much aware of his weight that he refuses to touch bread. But she hovers over him to feed him just as she hovers over him to do everything else for him.

This child was seen in consultation only. He was seen at follow-up examination, gaining weight continuously in spite of all the hormonal treatment which the mother needs for reassurance.

24. *J.O'C.* The school sends the patient for treatment of his obesity. The parents are not really concerned. The father cooperated in encouraging the boy to a better social adjustment. But the mother cannot limit his food intake. She herself enjoys good food, likes to prepare it, and is satisfied to see her children enjoy her contribution. She objects to having to buy oversize clothes for her John, but she will never limit his food intake. "It would break the heart of the little fellow," and "That child loves to eat, God bless him".

25. *W.O'G.* The pressure of the school has forced these parents repeatedly to seek medical aid, though they are not concerned over the obesity. "I grew out of my fat, and Billy will too," says this woman of 180 pounds. The patient loses weight during short periods of food restriction. The patient goes the rounds to his relatives and begs food when restricted at home. Because the family income is marginal, this is a source of embarrassment to the parents, and they are fearful the relatives will think they do not themselves have sufficient to eat. Following an accident (fracture of forearm) he needed "extra care" and gained 15 pounds in three months.

26. *D.B.* The parents were always greatly concerned over the health of the boy, and the mother talks at great length of the thousands of dollars she has spent on this child. But obesity is not a health problem to her. "If the school did not make me, I would never go to the hospital." She voices some concern over his height (he is of average stature) and sexual development (which is in correspondence with his age). The mother feels she is a sick woman herself, fears that she has a tumor, possibly cancer, but she would not even go for examination. Cooperation was poor, but the patient gained less than previously, and spontaneous puberty commenced during the following year.

27. *H.Pe.* The patient was sent for

examination by the school for extreme obesity and behavior disorder. The behavior difficulties disappeared after the patient had given expression to his grievances. Appointments were broken after the complaints of the school ceased. "I haven't got time to take Henry to the Medical Center just to let him talk to that doctor." The obesity and voracious appetite never concerned the parents. Restriction of food would be "like taking the heart out of him." During an acute illness the attending physician informed the parents that the patient's sexual organs were not developing properly. (At the time of first examination in the clinic beginning puberal development of the genitals was observed.) The mother was disturbed over this so-called retardation and took him regularly for injection treatment "to make a man of him." She feels at the same time quite relieved that he has a "pituitary gland in his stomach" on which she can blame all his peculiarities. The patient gained 18 pounds during five months of these glandular treatments.

28. *St.F.* The mother is not concerned about his overweight, but is greatly disturbed by his habits and minor ailments. She brought him for treatment after she had been in the hospital for an operation. "He did not eat and still gained weight. If he eats and gains I do not worry." No cooperation concerning dietary restriction was obtained from the patient or the mother. "I am glad when he says, 'Mamma, I am hungry.'" She has been lately concerned over his feminine figure, but would not take him for treatment. "I am a sick woman myself and am not able to take him to the hospital."

29. *F.B.* The mother is constantly seeking medical advice about the boy, but she is never satisfied, and goes from doctor to doctor until she hears what she wants to hear. She believes that physicians are malicious and are trying to take her child away from her when suggestions are made to change her method of handling the child. One physician has told her that her child would never develop into a normal male, and since that time no one has been able to reassure her on that score (even though the boy is undergoing puberty at 12 years of age). The mother devotes much time to preparing his meals and he can make her happy or distressed by accepting or refusing them. No continued cooperation with dietary advice was possible. The patient was seen in the clinic for all kinds of disorders and ailments. The rate in gain of weight has become normal.

30. *A.Hi.* The mother objects to many of the boy's habits and would like to see them cured as by magic with no effort on her or the patient's part. She claims that he has suffered from rheumatic fever and insists on repeated examination of his heart. A negative finding fails to allay her fears over his "weak heart," and she uses it continuously as a justification for overprotection and "to feed him up." She is afraid of reducing his food intake because to her loss of weight means loss of health. She says that he has never been a big eater and she pampers his appetite with foods which are beyond her meagre means. She is filled with remorse because of the mistakes she thinks that she has made in respect to his medical treatment, especially that he was given glandular extract for an undescended testicle.

31. *H.L.* The mother has always stuffed her children with food. "I would hit him if he did not eat"—and she continues to do this even though the boy is sent for treatment of his obesity. When he was still a baby she was told that he would not develop sexually. She was reassured on this point at that time. Recently she was again frightened by the family physician that the boy would not develop normally. She says that he blamed her. "What sort of a mother are you?", that she had neglected the boy, that it possibly was too late to do something. The mother is quite confused, and feels guilty about her neglect, the more so since she had

wished the patient to be a girl. She fears he might become impotent, or homosexual and imbecile. The parents accepted the reassurance given in the clinic without seeking further advice, and the boy has since matured sexually. Cooperation except for restriction of food was good. The boy had been extremely shy, and would not sleep away from home, nor touch food somewhere else, not even at relatives'. He was encouraged to join the scouts, was sent to camp, and given all the opportunities the parents could afford.

32. *B.F.* The boy had been overweight for several years, and the school had recommended treatment. The parents were not concerned over his weight. He was brought for examination after a rapid gain in weight and when a diagnosis of sexual maldevelopment had been made on the outside, which was not confirmed by examination in the clinic. The mother was unable to cooperate, but the patient assumed responsibility for himself and for the care of his mother. He lost weight, underwent normal puberty, and has made a satisfactory social adjustment.

33. *A.H.* The mother has fostered overconcern and abnormal interest in physical illness, and pays much attention to his various complaints. She admits her difficulty in handling his problems, but is unwilling to accept advice. Even if he has no complaints she is full of fear of possible disease. She fears he might develop diabetes, but never has his urine examined. There is no concern over his weight, though she says: "His appetite scares me," but only in regard to the possibility of diabetes, and not of obesity. She controls his food intake somewhat, thus increasing his hypochondriacal attitude.

34. *H.M.* The family gave in to the insistent demands of the school when they brought the boy for an examination. The mother was a fat child and is not worried about obesity. The father is critical of any treatment given the boy, and has thrown away all medicine given the boy in the clinic. The parents definitely do not want him thinner. "The family thinks the bigger he is the better he is." The whole family love good and rich meals, and the mother bakes her own bread. "What a life that would be not to be able to eat all you want." The mother is confused and disturbed over the sexual development of the boy. She has consulted so many physicians and received such varying advice that she is incapable of any positive decision. "He just has a little button of a penis," she repeats over and over.

The patient was seen only for the initial examination. Later appointments were broken.

35. *M.M.* The parents are not overconcerned about the boy's health. He was sent for treatment from the school because of rapid gain in weight. As to dietary restriction the mother is helpless against him. He violently objects if she does not serve him the food and the sweets he demands. So she feeds him to keep him from throwing temper tantrums. "Why should I bring him to the hospital when he won't follow the diet?" Nevertheless the boy did not gain during the ensuing year, and underwent normal puberty.

36. *F.M.* The mother has always been markedly overconcerned about the boy's health and is constantly preoccupied with his "illnesses," in spite of the fact that he has had few diseases. She has a good many complaints herself, and attributes them to worry over the patient. This hypochondriacal overconcern has become even more marked after the mother was frightened over the sexual maturation of the boy, that it indicated "feminine" development.

The mother and the patient had psychiatric guidance and cooperation was good. The boy lost in weight and underwent normal puberty during the following years.

37. *St.Sp.* This boy has been instilled with a deep fear of disease, especially of diabetes. The parents hesitate to give him a diet as the boy becomes appre-

hensive, fearing that they are hiding his real disease from him. The older boy was obese, and the mother has learned something from her mistakes in his case, and tries to avoid them in the patient. The mother herself has always restricted her food intake to keep from getting too fat. After pneumonia she was advised to eat well. She welcomed this advice and gained 40 pounds during one winter. She has been much more relaxed since this increase in weight.

38. *H.Pr.* Each ordinary childhood disease of this boy was a major tragedy to his parents, who in their boundless apprehension and fear "sacrificed" everything to his health. But they condemn each other for neglect of the child. The mother takes exaggerated pride in the fact that she feeds "her baby" only the best there is, and the obesity is her reward, and not a problem. The boy has always been enuretic, and this is the reason for his clinic attendance. The mother bitterly complains about the extra work which it means for her. She only feels that "he does it to spite me" —without any consideration that the boy himself suffers from the condition. Hospital admission for observation was advised but refused by the father, who would not separate from his boy, and feared that "they would torture him". The mother complains, "He (the father) would not do *me* the favor that he (the patient) might get better." It is of interest to note that the boy greatly improved after the mother presented her beloved rubber plant to the hospital, "for all they have done for my Howard."

39. *J.P.* There is no exaggerated concern over the health of the children in this family, but the patient has always been given somewhat more attention. The parents are on the defensive concerning dietary restriction. The father feels that the death of his own father ("James looks exactly like him") was indirectly due to dieting and weight reduction, that he thus lost his strength and then could not fight illness. The mother has a fine concept of the rôle of the meal in the life of a family. She hesitates to deprive the patient of anything the other children have—actually she has an urge to give him more.

This patient lost 20 pounds during a three weeks' stay in the hospital, and felt much better thereafter, to the great satisfaction and relief of his parents.

40. *G.Th.* The mother of this patient is very much overweight. She blames this on the pregnancy with him. Her medical record shows that she gained more than 100 pounds of her 280 pounds after the patient was eight years old. This family has suffered from various illnesses, all of which were treated at this medical center, and there is a spirit of loyalty towards the hospital. The first period of rapid increase of weight in the patient followed an appendectomy at eight years of age. His mother frightened him that she would take him for another operation "of which he might die" if he would not stop his habit of chewing wood. A second period of weight increase at 11 years of age was precipitated by fear of sexual maldevelopment. Cooperation was excellent, in social adjustment as well as dietary restriction. The boy lost 39 pounds in six months, and underwent normal puberty when 12 years old.

Comment

This investigation of the home environment of obese children revealed certain features in the family constellation with such frequency that they may well be considered typical. Many fathers were found to be weak and submissive persons unable to give positive and manly guidance. In the mothers an overt display of solicitude and protection barely covered an underlying attitude of aggressiveness and hostility. In such an environment which does not offer adequate emotional security, food gains an inordinate importance. Food is offered and received not alone for the

appeasement of a bodily need but it is highly charged with emotional value. To many mothers the offering of food represents the only way of expressing their affection and devotion. The child increases his demands as his need for gratification and security in other respects remains unsatisfied. On the other hand, enjoyment of physical activities and social relation is greatly restricted. The atmosphere of fearful apprehension confers upon them the meaning of danger, threat, and insecurity. The development of obesity in such surroundings becomes comprehensible. Overeating and inactivity bring about the increasing storage of fat. But these symptoms do not befall a child suddenly; they are closely connected with his whole development.

Not all questions which bear upon the importance of the family frame for the development of obesity can be answered on the basis of the presented material. Investigation of unconscious psychic motivations will be necessary for an understanding of why the mothers resort to overfeeding to express their ambivalent attitude. The question of how far the features revealed in the family constellation of this group are typical for all obese children can be answered only by the study of patients coming from a higher cultural and economic level.

This report has been restricted to a one-sided presentation of the influence of the family environment upon the development of the obese child. This implies an artificial division of a biologic unit in which the different forces continuously influence and modify each other. The emotional development of the children and their response to the environmental forces will form the content of a forthcoming paper. The separate discussion of the various aspects of the obesity problem was chosen in order to clarify the interwoven relationship. The conjugate importance of both aspects, the environmental and individidual ones, has been kept in mind throughout.

The question of how far the described combination of factors in the family constellation can be considered to be "specific" for the development of obesity cannot be answered at present. We are not acquainted with a comparable investigation of the family background of children suffering from a different somatic disorder which might be used as a control. The different elements which enter into the picture are similar to those which are encountered in psychological disturbances. The literature on behavior disorders in childhood abounds with references to maternal rejection and overprotection.

Striking resemblance to the features revealed in the background of obese children was found in the description of the family constellation in essential alcoholism (*3*). The family frame was reconstructed from the material obtained during psychoanalysis of an adult alcoholic patient. The passion for food as displayed by some obese people has been likened to the drunkard's addiction to alcohol. The literature on the emotional factors of the food intake in obesity has been reviewed in a previous paper (*1*).

The fact that patients develop different disturbances in apparently similar surroundings emphasizes the importance of the individual's responsiveness for the symptom formation. Whether one calls the inherent individual qualities "constitution," "heredity," or "anlage," they in themselves cannot explain a disorder, any more than a certain environment alone can create it. Corresponding changes in both appear to be essential for the development of disease processes.

SUMMARY

Evaluation of the food intake and muscular activity of obese children which were discussed in previous articles of this series indicated that factors in the home environment had contributed to the development of obesity.

The purpose of this investigation was to disclose common, if possible typical, features in the family constellation. The title "family frame" is intended to designate that the problem was approached from the angle of the parents, but is focussed upon the obese children. Their response to the family environment, however, will not be discussed in the present report.

The 40 families which were investigated represent a cross-section of the clinic population of obese children. The economic level was marginal. It will be necessary to supplement the findings by a study of patients coming from a higher cultural and economic level.

The condition of the homes was surprisingly good. The amount of money spent for food was disproportionately large.

The investigation of the background and personal development of the parents revealed many fathers as weak and unaggressive persons, with little drive and ambition. The mothers had suffered from great poverty and insecurity in their childhood and had been thrown upon their own resources early in life. They had reacted to their experience with self-pity and resentment and had been blocked in their emotional development.

The difference in temperament between the parents became even more apparent in the marital relationship. Only in few families was the marital relationship satisfactory. Disharmony expressed itself in open fighting or contempt of the mothers for their husbands. With few exceptions the mothers were domineering in the life of the families.

The families were conspicuous by their small size. Seventy per cent of the children were only children or the youngest. There were many admitted abortions, and more than 50 per cent of the children had been unwanted. The sex of the boys had frequently been a disappointment to the mothers.

A marked ambivalence was apparent in the attitude of the mothers towards the obese children. A fundamental rejection was compensated for by overprotection and excessive feeding. Hostility of the mothers expressed itself in unreasonable and cruel discipline. Greater security was revealed in the relation to the fathers, who, however, were too weak to give positive guidance. The handling of other children varied; marked differences were not uncommon.

The obesity of the children was rarely a matter of concern to the parents, in contrast to the exaggerated concern over acute physical disorders. Fear of sexual maldevelopment was marked in the parents of obese boys. Cooperation and interest in treatment were frequently poor.

The home environment as described did not offer adequate emotional security. In these surroundings food had gained an exaggerated importance. It had been charged with a high emotional value and stood for love, security and satisfaction and represented in all instances an important tie in the relationship between parents and children. The parents hesitated to withhold food in order not to upset a precarious balance.

Muscular activity and social contacts, on the other hand, had been associated with the concept of danger, threat and insecurity.

The occurrence of excessive intake of

food and of avoidance of muscular activity, two important factors in the development of obesity, becomes comprehensible under these circumstances. They are expressions not only of a disturbance in the weight regulating mechanism but of poor social adjustment and delayed emotional maturation.

The present report has been deliberately restricted to the description of the environmental forces. The conjugate importance of the individual responsiveness is emphasized. The discussion of this factor will form the content of a later article.

Bibliography

1. Bruch, H.: Obesity in childhood: III. Physiologic and psychologic aspects of the food intake of Obese Children Amer. J. Dis. Child. *59:* 739–781, 1940.
2. Bruch, H.: Obesity in childhood: IV. The energy expenditure of obese children, Amer. J. Dis. Child. to be published.
3. Chassel, J.: Family constellation in the etiology of essential alcoholism, Psychiatry, *I:* 473–503, 1938.
4. Levy, D. M.: Agressive-Submissive behaviour and the Fröhlich Syndrome, Arch. Neurol. Psychiat. *36:* 991–1020, 1936.

Periodical Literature

Cardiovascular

Shnur, Sidney: Cardiac Neurosis Associated with Organic Heart Disease. *American Heart Journal*, 1939, vol. 18, p. 153.

Due to the erroneous teaching that the diagnosis of neurosis is to be entertained only when organic disease has been excluded, many cases of cardiac neurosis superimposed upon organic heart disease are not properly diagnosed and treated. These cases are susceptible to accurate diagnosis because of characteristic predispositions, precipitating factors, symptoms, signs, and therapeutic tests.

In one hundred seventy-two miscellaneous cardiac patients, the most frequent predisposing factors to neurosis were found to be a family history of neurosis, a hypersensitive, emotionally unstable personality type, and in women, the menopause. The presence of organic heart disease was a factor in localizing the neurosis to the precordium.

The most frequent precipitating cause of cardiac neurosis superimposed on organic heart disease was the physician, who exaggerated the severity of the disease. Other exciting causes were abnormal precordial sensations, particularly those caused by the arrhythmias, trauma to the precordium, and reverses in business, family life, etc., occurring immediately before the onset of symptoms.

Precordial distress was complained of in 96 per cent of cases of pure cardiac neurosis and 80 per cent of neuroses superimposed on organic heart disease, as compared with 42 per cent of organic heart disease patients, excluding those with coronary occlusion. The pain was of characteristic nature: "sticking" or "twinging," often followed by prolonged soreness. Other symptoms included weakness, sighing respiration, insomnia, ringing or pounding synchronous with the pulse, dizziness, nervousness. Deep tenderness or superficial hyperalgesia in the left inframammary region was elicited in approximately three quarters of the patients with neurosis, with or without underlying organic heart disease, as compared to less than five per cent of patients with organic heart disease alone.

Relief from symptoms and the disappearance of inframammary tenderness and hyperalgesia by the use of suggestion plus a small amount of novocaine intradermally, ethyl chloride spray, and at times, saline intradermally or a red colored placebo per os, constituted a definite therapeutic test. Relief varied from hours to months, and recurrence followed psychic trauma or suggestion as well demonstrated in the interesting ten case histories detailed in this article.

W. W. H., Jr.

Neurological

Grotjahn, Martin: Psychoanalytic Investigation of a 71-Year Old Man with Senile Dementia. *Psychoanalytic Quarterly*, vol. 9, 1940, pp. 80–97.

The aim of this psychoanalytic study was neither to reveal the possible causes of senile dementia nor to correlate psychoanalytic and organic findings. It is the assumption of the author that before any attempt at correlation is made, the facts for such correlation must be found. Therefore it was attempted in this case study to describe and to understand the psychodynamic development of a senile dementia with psychoanalytic concepts. The case history is given as well as a report of a five-month period during which the patient underwent psychoanalytic and psychiatric observation. After this, an attempt is made at psychoanalytic interpretation and reconstruction of the psychodynamics in this individual case. The report does not overstep the limitations of an individual case study. The very tentative generalizations are concerned with the special significance of the castration fear in cases with senile

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psychosis, especially with the psychotic denial of this castration fear in old age. The importance of the senile impotency as a repetition and reactivation of old childhood anxieties is pointed out. The process of growing old with its psychological, biological and social dependence is described as a narcissistic blow in itself. In the example of this studied case the individual childhood situation could be followed in its dynamic connection with the later development into the personality of "Dad Thomas" and its later change into the senile dementia. It seems probable that the process of growing old concerns more the ego than the id.

Author's Abstract

General

ALEXANDER, FRANZ and WILSON, GEORGE: Quantitative Dream Studies: A Methodological Attempt at a Quantitative Evaluation of Psychoanalytic Material. *Psychoanalytic Quarterly*, vol. 4, 1935, p. 371.

The results of the "Quantitative Dream Analysis" of unconscious tendencies as expressed in dreams of analyzed patients with gastro-intestinal disturbances may be summarized very briefly as follows: patients with peptic ulcers show intense in-taking tendencies both passive receiving and aggressive taking. These tendencies are reacted to with an unusual amount of conflict. In chronic diarrhoea cases there are intense in-taking desires to be more passive receiving than active taking. The patients are on top of the list in the frequency of their compensatory giving. Giving tendencies outweigh the attacking tendencies. Both cases of patients are highly receptive, both have strong compensatory giving tendencies, for the purpose of solving the intense conflict about their in-taking attitude. The difference is that patients with diarrhoea show a higher amount of compensatory giving than those with peptic ulcer. The diarrhoea patients attempt the compensation symbolically—the ulcer patients try to compensate with actual efforts and activity, in real life. Patients with constipation have the strongest retentive wishes in the 18 cases who are investigated by psychoanalysis and a statistical evaluation of their dreams. They are furthermore characterized by a high percentage of aggressive eliminating urges and a lesser urge to give. The method of quantitative dream study as used by the authors is an attempt to obtain a picture of the economic disposition of the fundamental dynamic tendency in a personality. The quantitative data obtained by this method can be evaluated and integrated only in conjunction with the psychoanalytic technique and in cases which have been competently psychoanalyzed. It gives a reliable instrument for measuring the intensity of dynamic tendencies which otherwise can only be roughly estimated.

M. G.

ALEXANDER, FRANZ: Psychoanalysis Revised. *Psychoanalytic Quarterly*, vol. 9, 1940, pp. 1–36.

It is not always the task of a reviewer to save the reader the study of the original paper. In the case of this very essential and fundamental publication of Dr. Alexander's, the review shall be limited to directing the attention to the original publication itself.

Alexander starts with an analysis of the "Human Setting of the Development of Ideas" using a recent publication as a starting point and a test case. He proceeds to clarify some controversial issues of outstanding importance for psychoanalysis. "The Pitfalls of the Dialectic Approach" are pointed out in some striking examples: sociology vs. biology, culture vs. libido, actual situation vs. childhood situation, dynamic structure vs. the repetition compulsion, fear of the hostile world vs. frustration, cultural influences vs. specific family constellations.

Alexander believes that it is the psychoanalytic instinct theory which is most unsatisfactory, but it is unsatisfactory not because it is too biological, but because it is not sufficiently so. Its most vulnerable spot is the evaluation and definition of the rôle of sexuality. The attempt to make psychoanalysis more sociologically and less biologically oriented is unsound because psychoanalysis must integrate both with biology and sociology at the same time. Man is a complex biological organism, an individ-

ual personality, and a member of a highly organized social group. He must be understood and described in physiological, psychological and sociological terms.

M. G.

DEUTSCH, FELIX: The Choice of Organ in Organ Neuroses. *International Journal of Psychoanalysis*, vol. 20, Parts 3 & 4, July–October, 1939.

The choice of organ in organ neuroses is determined 1) by the specificity of the personality organization, 2) the specificity of the organic symptom complex, and 3) the interaction between these two factors. The fourth point is the specificity of the neurosis in the environment, which gives a further impulse in the direction of the choice of organ.

The task of future investigations, as suggested by this point of view is, 1) the study of the earliest roots of the interaction of physiological functions and instinctual life, and 2) the study of the action of certain neurotic factors of the environment in their influence on the choice of organ in organ neuroses.

M. G.

MOSCHCOWITZ, ELI: The Psychogenic Origin of Organic Diseases. *The New England Journal of Medicine*, vol. 212, 1935, pp. 603–611.

That reiterated emotional reactions can cause the anatomical lesions of organic disease cannot be proved by instruments of precision, but rather by prolonged observation of the life history of the disease. This, the author feels, is the special prerogative of the general practitioner, and as such he describes his observations on five diseases which he believes to be of "psychological origin."

Essential hypertension commonly occurs in people of the obese, flabby muscle habitus. Psychically these people are tense, serious and irritable. They are completely occupied with their daily work, their intellectual interests are few, their greatest handicap, their inability to relax. These men are the by-products of the increasing swiftness of pace of modern civilization. Essential hypertension is merely the exaggeration of a normal phenomenon, namely, intravascular tension, occurring in people of the above disposition.

Graves' syndrome frequently dates from a sudden emotional crisis or conflict in persons of a sensitive nature, persons who swing from ecstasy to profound depression. This sensitivity was found by Lorand and Moschowitz (*J. Nerv. & Ment. Dis.*, 79: 136, 1934) to be the result of excessive protection by the parents in early childhood. Graves' syndrome is merely the exaggeration of a personality trend, the thyroid gland becoming involved by an unknown mechanism, possibly through the autonomic nervous system or an endocrine imbalance.

Gastric and duodenal ulcer, after a brief survey of their experimental production, seem to be neurogenic in origin, with hyperchlorhydria as the immediate mechanism (Mann, Exalto, Ivy and Dragstedt). The predisposing personality is the highly irritable, sensitive, introspective one which precedes the disease by many years. The disease frequently dates from an emotional upset.

Cardiospasm (quoted from the experience of Dr. Asher Winkelstein) frequently follows psychic trauma although it also has other causes. In all cases the mechanism is a disturbance in the vegetative nervous system, specifically the vagus nerve. Some cases of psychic cardiospasm can be cured by psychotherapy.

Spastic colon and mucous colitis with abnormal motility, contractures and secretions of the colon, are seen in high strung, irritable patients. These patients secure striking relief from pure psychotherapy.

The common features of these five organic diseases of psychogenic origin are 1) the exaggeration of normal function, for example, hyperchlorhydria in peptic ulcer; 2) the diseases are essentially human diseases not capable of being produced in the lower animals, with the exception of peptic ulcer; 3) they rarely occur before the age when emotions, reasoning power, and adjustments become sensitive and complex; 4) their extraordinary tendency to recurrence; 5) these diseases have a consistent

relation to world crises and emotional stresses.

Treatment should be directed at prophylaxis which is achieved only by detailed inquiry into the patient's social and emotional life, as well as his physical being. A thorough history may not be enough to effect a cure, but in many cases, patient observation, broad sympathy and common sense will be sufficient.

W. W. H., Jr.

Berliner, Bernhard: The Psychogenesis of a Fatal Organic Disease. *The Psychoanalytic Quarterly*, vol. 7, 1938, pp. 368–380.

The author reports about a case which suffered from a combination of hysteria and depression due to the co-existence of genital repression, fixation and regression to early stages of development and of an excessive and tyrannical superego. The tremendous tension of superego would not allow hysterical conversion symptoms to develop but produced true organic symptoms which served the depressive impulses to self-destruction. The death of this woman was a dramatic acting out of the psychic conflict. The woman, 51 years old was seen by the analyst only 26 times and the analytic treatment could not prevent the fatal result because it had come too late. She suffered from a dysentery-like colitis from which the internist made the diagnosis of a psychogenic disorder. The patient re-enacted with her husband and daughter her oedipus fixation upon her own father and mother and she was unable to find a way out except by an intensified identification with her mother with whom she finally sought reunion in illness and death. Duplicating her mother's death, who also died of colitis during which illness the patient was her nurse, the patient found expiation for her guilt, redemption from suffering and reunion with the beloved mother in death.

M. G.

Book Reviews

Lederer, Francis L.: *Diseases of the Ear, Nose and Throat.* F. A. Davis Co., Philadelphia, ed. 2, 1939, xviii+840 pp., $10.00.

This book has been accepted widely as a text in undergraduate and postgraduate courses on Otolaryngology. Further, it is distinguished to a high degree throughout by the author's vision and interpretation of the specialty as an integral part of the whole of basic and clinical medicine; it is reviewed here because the attention of the Otolaryngologist has been focused on modern psychiatric considerations in his specialty—until now, a departure which is decidedly rare for such textbooks.

The scope of the subject has naturally precluded any exhaustive development of psychiatry, per se. Since the head and neck are for obvious reasons prominent for the incidence and diversity of symptoms reflecting every type and degree of neurosis, the psychiatrist, too, will find this volume of unusual interest. The author—in the text generally and again in a separate, summarizing chapter titled "Psychiatric Aspects"—has identified and described in detail each neurosis of the ear, nose and throat. Indeed, a real contribution to the advancement of these two specialties is evidenced here in the case of Otolaryngology, by the recognition which Dr. Lederer has accorded to the rôle of psychic traumas in organic and neurotic affections of the head and neck; and by the definition, in the case of Psychiatry, that he has given to those things which constitute one and/or the other. Such traditional and faulty practices of *shock therapy* for neuroses as, for example, the application of acids or hot mirrors to the throat in cases of "hysterical" aphonia, are made notorious by their omission from the text and by the repeated reference, wherever indicated, to modern psychiatric and psychoanalytic methods of treatment. At least Otolaryngology has been divorced from obscure concepts of neurotic disorders, still commonly expressed by such terms as "nervousness", "neurasthenia" and "functional disease." This work should give added impetus to the progress which many are making in the study of neuroses by stimulating the active interest of the profession at large in similar programs.

The neurologist, psychiatrist and psychoanalyst will note in these pages the

great degree of certainty with which an Otolaryngologist is able to determine and to evaluate the rôle of organic and psychosomatic pathology in his field. Prominent examples of this are to be found in the chapters dealing with vasomotor disturbances of the ear, nose and tracheo bronchial tree; with certain types of vertiginous attacks and of deafness; with headaches; with laryngospasms (hyperphonasthesia) and laryngopareses; with paresthesias and hypoesthesias of the pharynx; etc. It is not amiss to stress here the author's oft stated remarks on the fulfillment of medical practices by dismissing expediency—in this instance, in cases of psychosomatic affections —and, in its stead, observing every means to make each case the object of a cooperative and adequate series of studies.

The book has been illustrated profusely, mostly by original case-portraits, drawings, charts and photomicrographs. It is apparent that strict attention has been given to the pedagogic value of each. The type of paper and print, its double-column page and the manner in which labels have been printed directly on figures to obviate codes, are all details in composition which further lessen what is at the best a task when the medium of the printed word represents a source of basic information.

The writer of this review recommends the above volume particularly because of his knowledge resulting from his close association with the author of the innumerable merits of this contribution of Dr. Lederer to American medical literature.

L. Z. F.

TULCHIN, SIMON H.: *Intelligence and Crime: A Study of Penitentiary and Reformatory Offenders*. The University of Chicago Press, Chicago, 1939. $2.00.

In the past it was thought that there was a high correlation between intelligence and crime. This impression was based on studies which were poorly controlled. Mr. Tulchin's book represents the results of very careful and painstaking psychological studies made on over ten thousand penitentiary and reformatory offenders during the period between 1920 to 1927. The book is replete with tables, charts and statistical analyses of his findings. The author used the Army Alpha tests except for the illiterate and foreign born when the Beta test was administered. Individual tests were given to those rating below C—. The scores were compared with those of the men in the Illinois Draft Army, the author assuming them to be representative of the young men in the state. In general, the proportion of inferior, average and superior ratings among the inmates was very similar to that in the general population.

Mr. Tulchin, realizing the importance of other variables, obtained information on physical and social factors. The book is divided into two sections. The first section is concerned with correlations of intelligence and nativity, race, recidivism, age on admission, height, weight, educational record, marital status, employment status, and religion. Correlations between the types of crime and the above factors are reported in the second section.

Native whites with one foreign parent made better scores than native whites of native parents. Next came natives of foreign born parents. Lowest scores were made by the foreign born and Negroes, with the Southern-born Negroes scoring below those born in the North.

The classification according to the types of crime was as follows: fraud, robbery, larceny, burglary, murder, sex crimes, and a miscellaneous group. In general, individuals of all grades of intelligence were found in all crime groups. The highest median Alpha scores were made by the men committed for fraud, and the lowest scores by men committed for sex crimes.

There was a small positive correlation between intelligence and height. The percentage of inferiors was greater, and the median Alpha scores lower at the two extremes of the height distribution.

Percentages of single men were greater for the penitentiary inmates than in the state at large. The median Alpha scores for the married men were slightly higher than those for the single men.

Fraud was more frequent among native whites than among the foreign born and Negroes.

Murder was three times as frequent

among the foreign born and Negroes as among the native born groups.

Regarding age, 53.9% of the men aged 60 or above were serving sentence for sex crimes and fraud as compared with 11.4% of men between 20 and 25 years of age serving for the same crime. While 80.5% of men between 20 and 25 years of age were serving sentence for robbery, larceny and burglary, only 15.4% of the older men were serving for the same crime. More men were serving sentence for fraud and sex crimes among the married than among the single inmates.

A separate section is devoted to a study of the 153 women in the Illinois State Penitentiary for Women. Since this number is too small for statistical evaluation, the author presents his findings with this limitation in mind.

It is gratifying to note that the author is objective and critical in his definition of "feebleminded." He prefers to speak of "test score classification" rather than "intelligence." Mr. Tulchin makes no sweeping or startling conclusions and realizes that statistical studies alone are not likely to solve our problems. His work has served to stimulate more questions.

Illinois now has a psychiatric staff in connection with its penal institutions. All prisoners are classified psychiatrically at a diagnostic depot. Emotional and sociological as well as physical and psychological data are being gathered. Since the legal classification is often misleading, it would be interesting to make further correlations using the psychiatric classification of the inmates.

This book is highly recommended for criminologists, sociologists, lawyers, social service workers, psychologists and others interested in the various phases of criminology.

M. A. S.

PRESENT METHODS OF TEACHING*

FELIX DEUTSCH, M.D., M. RALPH KAUFMAN, M.D., AND HERRMAN L. BLUMGART, M.D.**

THE INTIMATE relationship between psychologocal factors and bodily function has always been recognized in medicine, but the task of conveying the importance of this relationship to medical students has depended more on the individual teacher's interest than on any considered program. To facilitate a study of the problem and to formulate a teaching program, a collaboration between psychiatrists and internists was considered essential. The Beth Israel Hospital, because of its compactness, excellent clinical material, and general administrative and clinical organization offered an unusual opportunity for this type of endeavor. The teaching was adapted primarily to a somewhat changing group of fourth year medical students, the resident staff, and many of the junior visiting physicians.

In outlining our teaching program we shall first present briefly some of the basic psychological concepts imparted to the students, for one cannot discuss teaching without specifying what one teaches. The organization of the normal personality and the normal relationship between physiological and psychological function must be clearly delineated to the students. There are many schools of psychology, ranging from the superficial, phenomenological types to the so-called "depth psychology," which emphasizes unconscious factors in the motivation of human behavior. Our own orientation in regard to the psychosomatic problem is derived from the so-called "dynamic genetic" schools of psychology, which emphasize the importance of life experiences beginning in infancy. A different orientation does not necessarily alter the effectiveness or validity of the teaching program as outlined. Our point of view was formulated to the student along the following lines:

Certain primitive biological needs are common to all individuals. In infancy they center in the feeding, secretory and excretory functions. Certain of these needs are satisfied within the organism independently of the environment. Others, such as feeding, are dependent for their fulfillment on the environment, as mother and nurse, and soon become intimately related to and conditioned by the environment. They thus become secondarily emotionalized. Without discussing the full theoretical implications of these statements, one may state that patterns of emotional behavior are thus laid down, which contain both psychological and somatic components. The infant reacts to the gratification or frustration of these needs with emotional responses. The gradual adaptation to reality begins at this period, and specific, emotional significance is attached to an individual in

* This study has been aided by a grant from the Josiah Macy, Jr., Foundation.

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the environment according to the rôle he plays in the fulfillment or frustration of these needs. The manner in which a person reacts to conflicts is greatly influenced by his reactions at this time. These conflicts may be solved either normally or neurotically.

A brief example of normal conflict and solution may be given to the student: A child may have a marked preference or wish for a certain type of food. The mother denies the child's wish. The child may react to this denial with hostility. Since there is a need to retain the mother's love, this hostility may not be expressed because of a fear of punishment or loss of affection. The conflict then is between the wish for the food and the fear of losing the mother's love. The child's solution may be the acceptance of a substitute for the desired food or the acceptance of the denial. The rôle of the forbidding parent may even be assumed by the child itself through the mechanism of "incorporation," and one sees in this mechanism a prototype of the pattern of conscience formation. Should this happen, subsequently in a similar situation there may arise a purely internal conflict involving the child's conscience. During the further development of the child, various other biological needs appear. The gratification or frustration of these needs give rise to new conflicts to which the individual reacts in terms of his past experiences. The type of conflict may be similar in different persons and thus modes of behavior may universally have characteristics in common.

Among these universal experiences are anxiety, shame, embarrassment, disgust, rage, pleasure, the need to be loved, and various forms of psycho-sexual satisfactions. Each of these complex emotional states has physiological reverberations: Shame may be accompanied by blushing; disgust by nausea; anxiety by pallor, increased blood pressure and heart rate. These physiological responses are not invariable, but tend in each individual to repeat the psycho-physiological characteristics laid down in early life. The degree to which psychological factors distort or inhibit the somatic component may determine whether the bodily functions of an individual will respond normally or pathologically.

The student should recognize that the age period in which somatic illness occurs is of great importance, because of the difference in psychic status. An illness occurring at five may have a significance to the individual that is different from the same illness occurring at fifteen. Coming at the height of an unresolved hostility to a parent, it may be interpreted in fantasy as retaliation or punishment. In another situation in which the need for sympathy and affection from the parents is threatened by the arrival of a new sibling, the illness may provide a solution for the rivalry. Environmental stresses, cultural factors, social needs present at any given period in the life of the individual play an important rôle.

An illness gives rise to a certain immediate gain in terms of gratification of various needs, and this exploitation of illness or "secondary gain" plays an important rôle and may often determine its course and outcome. The gain here involved, however, arises after the onset of the illness, and should not be mistaken by the student for the etiological factor. There is a tendency to overevaluate immediate reality factors as etiological rather than as precipitating causes of psychosomatic illnesses.

Fallacy of Diagnosis of Psychoneurosis by Exclusion

It is not uncommon in a general hospital for a patient to be referred to a psychiatrist with the diagnosis of "psy-

choneurosis, no organic findings." This might be called a diagnosis of psychoneurosis by exclusion. It is essential to demonstrate to the student that the criteria for the diagnosis of a psychoneurosis are positive and not negative. For this purpose, it is pertinent to discuss the psychopathological structure of the common neuroses, particularly those neuroses which involve somatic symptomatology.

A neurosis is a dynamic state of unstable equilibrium which represents a partially successful solution of a conflict. A neurotic conflict-solution in the example cited above would be as follows: The child, not receiving the food it wishes, is forced to accept the substitute food because it fears either direct punishment or loss of the mother's affection. It eats the food and may then vomit. In this way, the child both accepts the command to eat and at the same time rejects the unwanted food. The pattern of vomiting laid down at this stage will subsequently be revived in any situation which is reminiscent of and associated with a similar type of conflict. If the current conflicts are of such a nature that the ego organization cannot arrive at a satisfactory solution, a regression to older patterns of behavior, *i.e.*, to conflict-solution mechanisms at a more primitive level, will result. This formulation is in accord with the concept of regression as used by the psychoanalysts. In these attempts at solution, the individual responds with the same somatic patterns utilized in the earlier development of his personality.

The significance of early experiences vary from person to person. Conflicts which arise during the suckling period lead to psychosomatic responses which give a different direction to the development of personality than conflicts and experiences arising at a later date.

The psychosomatic patterns of the various neuroses are of different degrees of rigidity. Neuroses which represent attempts at conflict-solution at the earlier and more primitive personality levels, where psyche and soma are in the process of organization and physiological and psychological function are more intimately bound together, will be more deeply imbedded and more resistant to psychotherapy. On the other hand, psychosomatic disorders developed as conflict-solutions at a chronologically later personality level will show more elasticity and more possibilities for displacement from one organ to another. This may be seen in contrasting hypochondriacal symptoms with hysterical ones. For the purposes of this report it is impossible to enter into a detailed discussion and description of the individual psychoneuroses, but during the teaching conferences, their various aspects are thoroughly discussed.

It must be demonstrated to the student that he may make the diagnosis of psychoneurosis only in the presence of certain positive information. He must be able to demonstrate an actual conflict between environmental factors and the individual's needs, or a conflict arising from internal forces. Furthermore, he should be able to demonstrate the patient's attempt at solution and relate the current conflict-solution to an earlier situation in which similar mechanisms were utilized. He should also be able to demonstrate that the symptom complex has a definite conscious or unconscious significance and represents a partial, though unsatisfactory, solution. In addition, he should be cognizant of the secondary gain involved.

The difficulties in the application of these criteria should not be minimized. The student, having made a thorough physical and psychological examination, should learn that the mere absence of cytopathology does not always

indicate psychopathology, and that evidence of psychopathology should be as definite as evidence of cytopathology before a diagnosis is warranted.

The Psychological Reactions to Organic Illness

One of the great weaknesses in modern medicine has been the concentration upon organic symptoms to the exclusion of the person with the organic disease. The psychological repercussions to illness must be fully realized in order to comprehend and deal adequately with the total situation.

Organic disease has an *extrinsic* significance to the individual who is ill. This is aptly demonstrated in the case of syndromes which might be termed "stigmata illnesses." An individual who becomes infected with syphilis, gonorrhea, or tuberculosis, diseases which are surrounded by certain cultural taboos, will react in terms of his previous attitude to the taboos. The luetic after learning of the diagnosis, may avoid his physician, and rather than continue treatment, may be driven to a suicidal attempt because of his sense of guilt. It is the experience of many syphilologists that an individual may terminate his treatment as soon as the serological tests become negative, not because he *is* cured, but because the patient *believes* he is cured, in order to avoid the guilt associated with the illness. Contrariwise, the patient may not believe the physician when told he is cured. His anxiety may be so great that he needs constant reassurance, returning again and again for further tests and treatment.

There may be a tendency to exploit the organic illness to the fullest degree in order to receive compensation for the fact of illness. A youngster suffering from incapacitating chronic heart disease may develop a certain type of personality structure as a result of the illness, with the whole pattern of his life centering around his invalidism. An individual, on whom the responsibilities of a family weigh heavily will react quite differently, showing either guilt and anxiety or an unconscious relief from responsibilities. In the one instance, there is the psychological need for rapid recovery; in the other, a prolonged convalescence may result.

On the other hand, certain organic illnesses which are associated with fear of death, such as cancer, may lead to a psychological denial of the seriousness of the situation. One may observe such a mortally ill person, apparently full of optimism, constantly making plans for the future.

If the diseased organ happens to be one that has been used in the solution of certain conflict situations, the subsequent reaction to the illness may be of considerable significance. The hypochondriac, who because of guilt and anxiety has always feared heart disease, may welcome actual heart involvement as a punishment for his unconscious fantasies; or his anxiety may increase to such tremendous proportions that the prognosis of the illness becomes much more grave.

The Patient-Physician Relationship

The patient-physician relationship, based as it is on reciprocal emotional attitudes, is a very important element in the art of medicine. Too little attention has been paid to the multiple factors which enter into this relationship. It is often not realized that the physician plays a psychological rôle which is not altogether determined by reality. This is evidenced by the devotion of many patients to the family practitioner, not because he is a better scientific physician, but because he is a com-

bination of father confessor, authority, and arbiter in the solution of family difficulties.

The physician, as a rule, is accustomed to expect only favorable reactions and tends to accept himself at the patient's overevaluation. The emotional attitudes of the patient to the physician are based upon earlier experiences. The physician may be identified with figures, such as the father, which played an important rôle in the early life of the patient. In addition the rôle of the physician is determined by many other factors, not the least of which is the expectation of a cure. As a rule the positive aspects come to the forefront rather early. Sooner or later, the patient, either because of disappointment, frustration, or identification of the physician with earlier figures, may acquire certain hostile reactions. The physician on his part may also develop certain emotional reactions towards the patient. "Good" patients are those whom they can cure easily, and "bad" patients, those they cannot cure. Or the attitude of the physician may depend upon the type of illness presented by the patient: whether the illness is understood in terms of organic etiology, or is to some degree of neurotic origin and therefore not evaluated properly.

The ambivalence of the patient's emotional attitudes may be conscious or unconscious, but the physician, unless he understands these phenomena, to which one school of psychology has given the name of "transference," may fail to comprehend the illness and the patient's problems satisfactorily. Instead of realizing that, to a great extent, the patient's attitudes towards him are a repetition of earlier attitudes, he tends to accept them at their face value and reacts as if he were the object of overevaluation or of hostility.

The therapeutic values inherent in this relationship are considerable and should be emphasized to the students. Many physicians unconsciously create such positive relationships. One hears of doctors who have extraordinary therapeutic results because of a "wonderful personality." But it is not sufficient for the doctor to have such a personality. He must also attempt to understand why his personality is effective with some patients and fails with others; he must evaluate his success and failure not only in terms of technical medical skill, but also in terms of the emotional relationships involved.

History Taking

The technique by which the student is to obtain data pertinent to the evaluation of the psychosomatic problem must be clearly delineated. Too often the so-called "psychiatric" point of view in general medicine implies merely collecting an increased amount of material concerning the patient's life. This technique may be useless or even misleading to the physician and unnecessarily disturbing to the patient when the material has no relevancy to the problem at hand. The task is to obtain not only facts, but those facts which, in the light of the concept of genetic interrelationships, will throw light on the nature of the illness and its relation to the patient's problems.

The methodological approach involved is one that still requires further thought and formulation. In our own work with students, attempts were made in several directions. The approach which seemed to offer the best possibilities for obtaining pertinent data might be called the "listening method." Its aim is to obtain both the material which would be usually elicited by the question-answer technique and other material which the patient

ordinarily does not disclose. At the center of the problem stand the complaints of the patient. It is important not only to get the complaints in the words of the patient, but also to observe the manner in which he presents them. This frequently gives us our first hint of the personality structure of the individual. Since contact with the patient is first established at this point, it is essential that the student or physician permit the patient to tell his story of the illness in his own words without becoming inhibited by the attitude of the physician. To this end the physician's attitude should be one of neutral sympathy, listening to what the patient says, observing how he reacts and by indirection for the most part, getting the trend of the patient's story. At no time should the patient be given the impression that the physician is looking for any special type of material, since certain patients may attempt to give a story which would fit into their pre-conceived notion of what the doctor wants.

A method which is advantageous in this field, is that of the "Associative Anamnesis," developed by one of us (F. D.). The object of the associative anamnesis is to learn the causation of the symptoms and their significance to the patient in terms of his life experiences from earliest childhood. Not only what the patient says, but also the phase of the interview in which he says it, in association with what ideas, and the manner in which it is given are significant. The recollections of past associated organic and emotional disturbances are important.

From this type of interview, one may learn about the patient's neurotic conflicts, their rôle in motivating the characteristics of his life, and the psychological rôle played by those close to him. One may acquire insight into his early family relationships, and obtain definite clues as to how, why, and when the patient developed his symptoms, how his psychological make-up was thereby influenced and how he used the affected organ system in conflict situations.

There are many difficulties inherent in this type of approach, since it requires a certain inner freedom to accept information from whatever source and of whatever nature. The emphasis on emotional aspects naturally tends to set up reverberations in the examiner's own psyche and the tendency to emotional blind spots is present in all of us. One tends never to see aspects of one's own emotional problems in others, or to constantly see them where they do not exist.

Relevant psychological material concerning the illness of the patient is obtained not only through the anamnesis, but also during the course of the physical examination. Relatively little attention has been paid to the psychological reaction of the patient to the physical examination. The student should be taught to observe the patient's emotional response, which may reveal attitudes not otherwise obtainable. Does the patient show any evidence of shame, anxiety, apprehension or impatience? Does he seem to fear the impending examination? Does he make any comments to the examiner? What are the physiological expressions of his emotional reactions? Does the patient blush, perspire, show pallor, trembling, or agitation? A patient who shows profuse perspiration, pallor, tachycardia, and other evidences of anxiety should as a rule also have subjective feelings of fear or anxiety. The denial of any subjective feelings should be noted, since it may indicate that the patient's method of handling his emotional life is by the process of suppression, in which the physiological responses are present, but the sub-

jective aspects are not usually revealed.

The examination of certain systems, especially those to which the patient refers his symptoms, is always emotionally important to the patient. Close attention should be paid to what he talks about during the course of the physical examination. Any sudden shift in the trend of conversation, any emotional response or lack of response should be noted.

The examiner's own emotional attitude throughout the examination is important. He should not suggest, through his own reactions or attitudes, any overt emotional response to the findings on physical examination. An apprehensive patient is constantly on the alert, watching the behavior and facial expression of the physician. Too often an anxiety patient may be precipitated into a panic by what he sees written on the physician's face.

One of the difficulties in the general hospital is the patient's fear that confidential information will be incorporated into the general case record which is available to the ward personnel. Such an objection on the part of the patient is met with so frequently that it must be taken into consideration, not only in the teaching of psychosomatic medicine, but in the treatment of the ward patient. It should be a definite rule that the individual interviewing any patient should utilize directly only that material which he himself has obtained.

The Problem of Therapy

The problem of therapy naturally represents the chief interest of the student and physician. Unless the teacher of psychosomatic medicine always bears this in mind, the conferences will sooner or later lose all vitality and interest.

In our own program, the problem of therapy was discussed in didactic lectures which supplemented the clinical conferences. The various forms of psychotherapy were evaluated. The rôle of reassurance, supportive therapy and other anxiety allaying techniques were discussed. The difference in aim between these therapies and the so-called "anxiety-provoking" or "uncovering" psychotherapies, such as psychoanalysis, was discussed in detail. Lack of space does not permit a discussion of the underlying concepts in relation to the whole problem of psychotherapy, but these concepts were discussed in great detail during our conferences.

The limitations of psychotherapy, as well as its possibilities, were constantly kept before the student. One should guard against conveying to the student an exaggerated idea as to the value of psychotherapy. Two attitudes are often encountered in relation to this problem: a more or less complete rejection of, or a too enthusiastic acceptance of, the importance of the "psychological" in medicine. Of the two, the latter is perhaps the more harmful. On the therapeutic side, high hopes impossible of fulfillment may be raised in the minds of the students and the staff with consequent disappointment.

The Organization or Plan of the Teaching Conference

The internist for teaching purposes represents what might be called the orthodox clinical approach. It is his function, actually fulfilled by the student, to formulate the clinical problem in terms of the ward approach. The psychiatrist, in his discussion, presents the psychological structure of the individual, emphasizing the rôle of the emotional factors.

After a period of experimentation, the following procedure was adopted. The patient was assigned to a student on service, who studied the patient in the routine way, formulated the problem as he saw it, presented his findings to one of us, who had also examined the

patient. The problem was then reformulated in the light of the teacher's experience and the special psychosomatic approach. Attention was directed to those aspects of the material which revealed the patient's emotional attitudes, especially as they related to his symptoms. The student then returned to the patient, either with the teacher or alone, for further examination and study. The problem was reformulated by the student in the light of his new knowledge and findings, and prepared for the conference presentation.

This presentation consisted of a differential diagnosis, an evaluation of the psychosomatic and therapeutic problem involved, and consideration of the necessary steps for further study of the situation. The psychiatrist discussed the psychological findings and interrelations in terms of the personality organization, the presence or absence of conflict situations, the structure of the psychoneurotic symptoms, and the psychological reaction of the patient who is ill. At the end of the conference, it was the function of one of the authors to synthesize the data.

One important aspect of the teaching conference was the exploration of the gaps in the material elicited by the student. The appropriate method of obtaining adequate material was discussed. The rôle of the recent conflict in relation to old conflicts, the factors of environmental influence, family constellations, social factors, and the patient's attitude toward the illness were discussed. Emphasis was laid upon the patient-physician relationship, as it presented itself during the interview. Finally the prognosis, therapeutic problem and plan of treatment were formulated.

The amount of time available for a teaching conference imposes necessary limitations. Generally our conferences lasted one and one-half hours, which was somewhat too short, since it is of great importance that enough time be allowed for a prolonged discussion period. Alterations in the teaching technique were made on the basis of student questions, criticisms, and suggestions.

The cases utilized for teaching were ward patients with syndromes referable to practically every system. In order to demonstrate different types of psychosomatic disorders, a certain selection was made. Cardiovascular patients with angina pectoris or neurocirculatory asthenia; patients with anorexia nervosa, obesity, gastritis, or gastric ulcers; others with disturbances of the respiratory tract, the autonomic nervous system and the endocrine glands were chosen. The significance of pain, as exemplified by clinical material, was discussed. Patients with outspoken psychoneuroses were studied, with special emphasis upon the physiological repercussions of the neurotic symptoms.

In such a teaching program, the level of discussion must be such that one neither talks down to the student nor too far above him. We found that a knowledge of formal psychiatry in itself, centering as it does in the overt psychotic syndromes, is not sufficient to acquaint the student with the rather intricate psycho-physiological relationships involved in this field. Originally, it was mistakenly assumed that the student had a rather good background of psychological knowledge. On the basis of our experience, we believe that a successful program for the teaching of psychosomatic medicine should begin with the pre-clinical years. Theoretically, the average student knows that there is such a relationship, but actually, he has relatively little conviction of its reality.

Simultaneously with the study of function at a physiological level, students should be acquainted with the

psychological concomitants. From one point of view, this requires a re-orientation of teaching attitudes. Consequently, unless the student comes to his clinical years well grounded in concepts of psycho-physical interrelationships, it becomes a difficult task to give him a basic groundwork during the course of a rather busy and all too short clinical orientation.

One of the major problems involved in a well rounded course of psychosomatic teaching is the attitude of the house officers and the attending staff. A teacher of psychosomatic medicine is in an even unhappier position than the psychiatrist in a general hospital. The house officer is perfectly willing to let the psychiatrist put a diagnostic label on a patient whom he himself has already recognized as psychotic. The teacher of psychosomatic medicine, however, deals directly with medical problems. As a rule the resident staff, by background and training, is not particularly interested in psychological factors except in very general terms. In the rush of an active clinical service, the house officer has relatively little time to spend probing into the intricacies of personality organization. A diagnosis arrived at by laboratory techniques seems safe and sure. Psychological investigation is looked upon as dealing with imponderables "not subject to the ordinary criteria of scientific investigation." The student, to a great extent, takes his cue from the house officer who is almost a contemporary in clinical experience. Our experience has been that it is essential, in so far as possible, to have the house officer attend the teaching conferences and, in addition, to conduct special seminars dealing with psychosomatic problems for the resident staff and the junior attending physicians. The importance of this step cannot be overemphasized, since it requires sustained teaching effort to familiarize the staff with the concepts involved and to demonstrate, preferably on the ward-patient and in the routine problems that arise, the validity of these concepts.

Perhaps one of the most difficult aspects of the whole problem of teaching in this field is the physician's own attitude toward emotional problems in his patient. Numerous criticisms apparently levelled either at teaching methods or points of view are in reality rationalizations to avoid facing painful subjects. Since such rationalizations involve an emotional rather than an objective point of view, they are most difficult to counter. The fault lies not only with the individual physician and his emotional problems, but with the type of medical training which he has received. The physician has been trained to look upon death and suffering professionally. Unfortunately this objective attitude frequently is not maintained when the emotional problems of the patient parallel his own.

Allowing for the natural variations in psychological aptitude of the individual student and in spite of the difficulties enumerated above, it was possible, through an intensive and persistent program of teaching based on the concepts outlined, to familiarize the student with the basic principles of psychosomatic medicine. The intimate interactions between psychological and somatic factors in the psychosomatic unit were grasped. He was able to a gratifying degree to evaluate the various components which are essential in understanding both the patient and his disease; to evaluate the current conflict; to relate this latter in dynamic terms to the old conflicts and personality patterns; to give proper weight to the secondary gain involved in the illness; to see the personality in perspective in terms of its structure; to evaluate, on the basis of positive evidence,

the psychoneurotic symptomatology; to elicit pertinent data without descending to aimless hit or miss questioning; to maintain an objective, neutral attitude toward the patient's emotional problems; to guard against the projection of the examiner's own conflict; to evaluate as a totality the individual who is ill rather than to emphasize the system which shows pathology; and to evaluate the therapeutic possibilities in terms of the needs and potentialities of the patient, rather than to rely upon the vague and imponderable "personality of the doctor."

PSYCHOSOMATIC MEDICINE—VOL. II, NO. 2, APRIL, 1940

THE IMPORTANCE OF PSYCHOTHERAPY IN SICKNESS INSURANCE*

PAUL WENGER, M.D.

THE DEVELOPMENT of medical science, according to the psycho-physical consideration of the sick individual as a whole, has made psychotherapy of the psychic component in the illness a thoroughly authorized medical method of healing. It would be beside the point, as often happens, not to recognize this method. "Connected with especial preparation and methods," psychotherapy in the practice of modern medical procedure can no more be done away with than, for example, X-ray treatment or any other physical or medical therapy. The lack of schools of medical psychology, as well as the intentional misleading of the public by so-called quacks have made doctors and the public distrustful of these things, much to the detriment of those patients who often can be helped only through psychotherapy.

Social sickness insurance measures also, up to the present time have recognized psychotherapy only to a small degree, as a necessary medical procedure for the insured. At the very best, a psychic treatment was granted under the caption of the so-called "treatment *beyond* the immediate medical needs of the patient."

Going through the special scientific literature of recent years, a number of authors have handled the question of psychotherapy in social insurance. All of them stress the value and the necessity of psychotherapy in social insurance. Particularly interesting is Fuerst's paper (*1*) which states that the situation is impossible for doctors as well as for patients, because the former suffer from the fact that the methods of psychotherapy are not sufficiently known or recognized, and the latter, because the necessary treatment is not rendered by the insurance company. That psychotherapy is not recognized by the company, can be accounted for because of the ignorance of the character of a neurosis and the fear of pecuniary difficulties. For this reason the doctor often cannot help in cases where from a scientific point of view, it would be possible and often less expensive. In most cases, one must be satisfied with so-called minor psychotherapy (suggestion, psychagogic, etc.) except for serious cases of anxiety, compulsion and sexual neurosis where one should use analytical methods. To select the proper cases is important to the whole problem. These deductions of Fuerst are certainly worthy of notice. It seems to me that pecuniary obstacles are a minor factor in the antagonism of insurance companies to psychic treatment in general. If once the experts in social insurance have become convinced of the scientific importance and the therapeutic effectiveness of this type of treatment, they would be willing to pay for it, particularly when it is demonstrated that the cost of such treatment, if instituted early is usually less (not greater as is so generally feared) than the cost of other types of therapy. Moreover, we must remember that the majority of psychic illnesses are social illnesses with all of their consequences for the patient, the family and the public, and, therefore, health insurance should be highly concerned

* This paper was written for the International Congress of Psychotherapy, London, summer 1938, but political circumstances at that time prevented its presentation.

with the quick healing of such patients. The specialists in this branch have often noticed that it is the inclination of the nervous patient to get a "soft job" or even to become a public burden because of his illness.

In this paper I give a report of the success of psychotherapy in sickness insurance for employees in Vienna from 1932–1938. I had the opportunity to treat 100 special cases of illness by systematic psychotherapy. The indications and technique of treatment are given in my articles in the Berlin clinical and in the Vienna medical weekly of the year 1930 and 1934. The technique used is best characterized as "individual analysis" which—as should be expressly emphasized—is not to be confused with psychoanalysis in the Freudian sense. The first necessity is to give the nervous patient a reasonable and realistic attitude towards life, in other words, a method of living, so that his nervous symptoms[1] are recognized as superfluous and will disappear of themselves. It should be stressed that trust in a doctor is indispensable to successful treatment. This technique of "individual analysis" has shown excellent results with a lasting cure obtained in the majority of cases.

Let us look closer at the material gathered from the 100 cases—According to the diagnosis there were 48 per cent suffering from general neurasthenia, sexual and organic neuroses, 37 per cent from depression and anxiety neuroses, 8 per cent from hysterical and similar neuroses, 4 per cent from compulsion neuroses, and 3 per cent from sexual perversions. All in all, they were moderately serious and serious cases which had been treated in accordance with general medical procedures for some months without success. Some had had physical therapy, Freudian psychoanalysis and even a stay in recreation homes or nervous establishments, in their earlier treatment. Very many patients explained frankly that psychotherapy was their last trial, that they were at the end of their rope. Nevertheless, the selection of cases was made very carefully in order to prevent any waste of the insurance fund. The cooperation of the patient was of paramount importance and was determined on the basis of his whole personality rather than from what the patient said. From this point of view psychotherapy is, as it were, a twin sister to understanding human nature.

There were 60 per cent men and 40 per cent women. This proportion corresponds approximately to that found in the general statistics of all the insured members, both male and female. It seems, therefore, that the working woman has reached nearly the same psychic power of resistance as the working man. This is in contrast to the proportion which I observed in the patients who presented themselves at the Policlinic Hospital which showed a greater psychic instability on the part of the women, who were not working.

As regards the psychic component of the cases treated, a major factor in 83 per cent was marital or sexual difficulties, in 12 per cent vocational difficulties and in 5 per cent "troubles in the family."

The treatment lasted in some cases for one month or more, at most five months, three months being average. In my opinion a longer treatment is, as a rule, of little value since experience has shown that the patient either reaps the benefit of his cooperation in a few weeks, or is little or not at all improved after months of treatment.

As to the results at the close of the treatment, 42 per cent were rid of their complaints, 42 per cent markedly improved and 16 per cent were dismissed

[1] The unconscious tricks of a person feeling threatened.

prematurely because of their lack of response to treatment. Among these were mostly persons, unemployed or in hopeless matrimonial difficulties.

The lasting cures are worthy of note. In reviewing the first 40 cases of all who were treated five or six years ago, 28 (that is 70 per cent) have remained free of trouble. Four of the remaining 12 were unsuccessful and the rest could not be traced.

The question of the re-established ability to work is particularly interesting. Of the 100 cases, 74 per cent were originally capable of work, 15 per cent without jobs and 11 per cent incapable of work. Nine of the 11 unable to work were able in a relatively short time with the help of treatment to take up their occupation again.

Now as to the possible financial advantages to the insurance company of psychotherapy over other methods of healing, such as physical therapy, visits to recreation homes or psychiatric institutions: If one realizes that of our 100 cases, 38 had previously been unsuccessfully treated by methods other than psychotherapy at great cost to the insurance company, but that through rational psychotherapy 32 of these 38 were freed of their complaints, the possibility of saving to the company can be thoroughly demonstrated. Specifically, preventive psychotherapy, if carried out in time, can obviate the cost of hospitalization and other institutional expenses in cases which would otherwise become serious psychic illnesses, such as melancholia, manic-depressive and compulsion conditions, drug abuses, etc., provided that the patients are selected carefully.

A less happy chapter concerns itself with the patients who developed a neurotic tendency in order to secure pensions, or other disability insurance. There were only six such cases, and not much could be done with them (four ended negatively, two were improved). The knowledge that if one keeps at it long enough one can really get money from the insurance company goes to their heads and cripples their wish to get well.

As a practical example, I will take excerpts from a case which was treated five years ago and was recently traced—

Case 27, E. S. 60 years old, married, employed in a building firm.

The patient has suffered for about 7 years with periodic headaches and sleeplessness. Three years ago, a stay in a *sanatorium* improved his condition for a time. For the last six months he became worse again. He was very irritable, suffered from anxiety and had ideas of suicide. Since that time he had been *incapable of work*. He was treated physically with cold water and took a great deal of medicine (before he came to me) but all without success. He had pleurisy 28 years ago and at that time was a heavy smoker and drinker. He also had a history of gonorrhea. Potency had recently decreased; parents healthy; father somewhat nervous.

Physical examination: No pathological findings.

Psychic examination: The patient gave the impression of a distrustful, shy man. He came from an old miner's family and had been married twice. He "hated people." He loved his children very much, having a son and a daughter living in another country. Seven years ago—at the beginning of his psychic illness—he lost the good position which he had had for years. Three years previously, during his stay at the sanatorium, his son had become seriously ill. For the last six months during which time he had been collecting insurance, he felt especially depressed since his daughter would not obey his wish that she return. He was the middle child of three brothers, and was considered "willful." He could remember that his father often took him in the firm's carriage and let him drive it. Once, he fell into the water and was saved with difficulty. These memories point to his attitude towards life, one of convulsive retention of authority—holding

the reins!—and to his distrust—accident. This attitude towards life makes his ill-humor understandable also since his favorite child will not bow before his authority.

The *treatment* was carried out by making the patient conscious of the connection and parallelism between these things. After a short time he became capable of work and found a job.

Later observation: Five years later the patient told us that his health "in so far as his nerves go" was satisfactory which is principally due to his psychic treatment.

At the end we must emphasize one thing—To win the complete trust of such patients is more important in insurance practice than in private practice. Since a free treatment which the insurance treatment represents, seems inferior in itself, we must avoid even more carefully everything which could be interpreted by the patient as of insufficient interest in his illness.

Conclusion

The value and the meaning of psychotherapy for Sickness Insurance has been illustrated by 100 cases of illness. The correct choice of suitable cases for treatment is especially important in preventing serious psychic troubles.

References

1. Fuerst, R.: Zür Frage der Psychotherapie Sozialversicherter, Zbl. Psychotherapie, *4*: 216, 1931.
2. Wenger, Paul: Über weitere Ergebnisse der Psychotherapie im Rahmen einer medizinischen Poliklinik, Wien. med. Wschr., *84:* 320, 1934.

New Commitment Statute for Illinois Prepared by the Association of Former Patients

THE EXECUTIVE COMMITTEE of Recovery, the Association of Former Patients of the Psychiatric Institute of the Illinois Research and Educational Hospitals announces the completion of the preliminary draft of a new commitment statute. The statute was prepared with the aid of faculty members of Northwestern University Law School and will be submitted to leading psychiatrists and jurists for criticism and suggestions. After its final revision has been effected, it will be introduced in the next regular session of the Illinois legislature. The main features of the proposed statute are the abolition of court action and the elimination of the "court record." Under the new plan a patient, after proper certification by two physicians, will be admitted to a state hospital without petition, writ, or trial. The hospital staff will be required to make an examination within ten days of admission and to send a report to a State Board of Supervisors composed of physicians, lawyers, and lay people.

The Recovery Association was founded November, 1937, by thirty patients who were discharged from the Psychiatric Institute as recovered. Today it comprises as dues paying members close to one hundred and fifty former patients and upward of five hundred relatives and friends. The Association publishes the bi-monthly journal, *Lost and Found*, in which the adjustment problems confronting the recovered patient are discussed. Recovery has the endorsement of the University of Illinois, the State Department of Public Welfare, the Illinois Psychiatric Association, and the Illinois Society for Mental Hygiene. Inquiries should be addressed to Recovery, 1819 West Polk Street, Chicago, Illinois.

Dr. Austen Fox Riggs

WITH THE death of Dr. Austen Fox Riggs in Stockbridge, March 5, 1940, that field of medicine which has now come to be called psychosomatic medicine lost a pioneer worker.

Early in his professional career while working at the Presbyterian Hospital in New York City, Dr. Riggs became interested in that large group of patients who were sick to a degree that was out of proportion to the organic findings and in patients in whom there was no demonstrable pathology. He devoted his life to this work in an attempt to find a method of treatment for this type of sick patient.

Because, I think, of his too great professional modesty, as well as the fact that he was mainly interested in treating patients and gathering a wealth of material (now over six thousand cases) before he drew conclusions as to his method of treatment, he has published little in medical journals. Dr. Riggs worked, wrote, and lectured primarily to and for his patients.

More recent workers in the same field may be unaware of Dr. Riggs' work. It will be of great interest to them to know that in 1912, and based on what was then known of neurology and his observation of human behavior, he came to conclusions which are in general harmony with the most recent work of psychiatry and neurology. He developed the hypothesis of four types of adaptation possible in human behavior: the reflex, the instinctive, the intelligent, and a super-intelligent (or ethical and social). These levels of adaptation, he explained, depended on and corresponded to the function of the various nervous systems' structures from the lowest reflex to the highest cortical action. He explained functional nervous illness as arising on the basis of conflict between these levels—for example, the instinctive with the intelligent or super-intelligent. He felt that some individuals had a more sensitive or reactive type of nervous system, and that in these individuals, emotional reactions arising in relation to the stimulation of the more primitive centers, such as fear, anger, hate, and love, were more easily aroused, and more likely to produce bodily symptoms. He pointed out that very frequently there was conflict and guilt within the individual over this. He also said that very often these conflicts were forgotten by the individual, or in the "unaware" part of his mind, and that they could be brought to the individual's awareness by the association of ideas. He would do this for patients by permitting them to discuss with him their life history and speak freely of themselves. He felt, that by helping the individual to become aware of his conflict, the patient could then frequently handle the situation with his higher intelligence, and that the energy which had previously been expressing itself by way of the lower emotional centers and giving rise to bodily symptoms could then be expressed by way of the higher centers and intelligent behavior with decrease or absence of many or all the symptoms.

It is unfortunate that so few people have known of this early work of Dr. Riggs which is particularly outstanding because of its date, as well as the results he has had with patients.

A. Louise Brush, M.D.
Formerly Murkle Fellow at Riggs' Foundation

IN MEMORIAM

Flanders Dunbar

1902—1959

FLANDERS DUNBAR (Bryn Mawr 1923) had majored in both literature and science when she began the graduate work at Columbia which culminated in her first published book. Her Ph.D. dissertation, *Symbolism in Mediaeval Thought* (Yale University Press, 1929) is still in demand by scholars in literature and cultural history; it is almost impossible to obtain, and libraries have to guard carefully their shelf copies. To her, it seemed a step on the way to deeper penetration of humane meanings.

It is not strange that one who had studied Dante should wish to know more about religion, or that one interested in symbolism should be attracted by dynamic psychology. To understand religious thought she went to Union Theological Seminary (and obtained a B.D.). To penetrate depth psychology she earned her M.D. at Yale, did clinical research at Worcester (Massachusetts) State Hospital, served at New Haven Hospital and Bellevue, became hospitant in the General and in the Psychiatric-Neurological Hospital and Clinic of the University of Vienna, and was an assistant at Berghölzli, Zürich. Somewhere along the way, among her numerous degrees, Columbia awarded her a Doctor of Medical Science (Med. Sc.D.)

Her scientific attitude had been guided by her father, a physicist and mathematician, who taught her the elements of physics and calculus when she was a child. All through her intellectual pilgrimage she could forget neither the physical environment and embodiment of man nor his emotions and mental processes. She always revolted against the dualism which had led many, trying to ease the ills of mankind, to ignore, and sometimes to scorn, either one aspect or the other. Among her earliest published scientific papers was one on healing at the Shrine of Lourdes—a careful but sympathetic observation of what happened, with a few suggestions of why and how it could have happened. And it is typical of her scholarly approach to such matters that her first major medical publication was a massive bibliography of what others had written indicating unity of mind and body. *Emotions and Bodily Changes,* still basic in the field, has gone through edition after edition as she added new contributions.

Dr. Dunbar's best known venture into medical research, carried on with others at Presbyterian Hospital in New York, was the study of serial admissions of patients with a number of prevalent diseases. The dominant idea was to assess not only the emotional characteristics of the patients, but their backgrounds and environments as well. From this study it appeared that a characteristic "personality profile" was associated with each type of disease in a significant number of cases. It was also discovered—a notable instance of serendipity —that many of the fracture patients, included as controls on the basis of the assumption that they were emotionally "normal," turned out to be accident-prone and exhibited characteristic emotional problems and backgrounds.

Later, Dr. Dunbar, feeling that the phrase "personality profile" was being interpreted too narrowly, substituted for it "constellation." Again and again she replied to those who criticized certain inferences from this study that in no case was either the personality or the environment to be regarded as the "cause" of a specific ailment. This supposition, she believed, was naive thinking, inconsistent with modern scientific concepts that deal with "events" in a field of forces and abandon the model of one-to-one cause-effect sequences. She eventually became much intrigued by the operational view of scientific reasoning, with roots in the scientific philosophy of Peirce, James, and Dewey—developed by Professor P. W. Bridgman of Harvard.

The proper use of the personality constellation, she held, lay in its aid to diagnosis—especially its determination before symptoms had become manifest. The task of the physician was to employ an effective

means of intervention—a process which might be very different from discovering and eliminating a single "cause." For similar reasons she disliked and refrained from using such terms as "psychogenic" or "psychosomatic diseases" as distinguished from other diseases supposed not to have psychic components. It is characteristic of her thinking that she often referred with pride to the fact that among her various posts at Presbyterian Hospital, i.e., the Medical Center, she had held one as a psychiatrist on the *medical* service—then a daring innovation which did not sit well with the prevailing departmental proprieties.

With the aid of Dr. Frank Fremont-Smith and the Josiah Macy, Jr. Foundation, who had been interested in her previous work, Dr. Dunbar played a leading role in the inauguration of this journal, of which she was the first Editor-in-Chief, and, a little later, in the formation of the society of which it is the official organ. She heartily favored the policy of avoiding any implication that these developments heralded the birth of a new medical specialty; rather she regarded the venture as a forum in which all members of the medical profession might find enlightenment and might cross arbitrary boundaries. Here, as elsewhere, her main interest lay, not in illuminating, however brilliantly, any corner of a limited field, but in sponsoring a creative and basic view of the whole.

One might suppose, from this academic and professional record, that Flanders Dunbar felt almost solely an interest in ideas. On the contrary, her chief involvement during the greater part of her medical career was with her patients, not just as cases but as persons. She had an extensive private practice, to which she devoted an extraordinary amount of care, time, and energy. Perhaps her chief difficulty as a practicing psychiatrist was to avoid the emotional strain of caring too much about those whom she called "my children," worrying too much about their sufferings and confusions, helping them too much when the purely professional relationship had come to an end. Her habit in later years was to wake at 5 A.M., meet her first patient appointment at 6—for she had many who could not come during office hours—and continue without a break, often not even for lunch, until late in the afternoon. She kept full records on which were based in part many of her scientific papers and passages in her books.

Though she spent almost every weekend in the country, she never set out without at least one secretary, and a heavy load of journals, books, notes and manuscripts in the luggage compartment. She used these weekly trips mainly to keep up with her reading and writing. She continued her work in periods that most people regard as dedicated to leisure, not because she did not enjoy the country, but because she somehow could not avoid undertaking more obligations than could be met in normal working hours. From her early childhood she had been a good horsewoman, and liked to ride, especially a high-spirited thoroughbred who would be difficult to control unless one could feel close enough to the horse to retain his confidence and obedience. But as her obligations grew, she ceased to ride much. She maintained interest in her rock garden, supervised the pruning of trees, and continued to swim several times a day. She constantly had poodles about her, knew and enjoyed their personality differences, and treated them like children.

After the late war, Dr. Dunbar maintained close contact with international professional organizations, not only those in her field, but the World Health Organization and the International Federation for Mental Health. She regarded as a vacation her trips to Europe for a few weeks in the summer, making the round of numerous conventions, at many of which she delivered papers. Otherwise, she rarely left her practice, except for a brief holiday during midwinter on a Florida beach.

The accomplishment of so much might indicate a stern, puritanical addiction to

duty, yet she possessed a childlike spontaneity, and often left her personal affairs in confusion. There were times when those close to her felt as if she were driven by some Fury to carry on beyond the point of exhaustion. Although she knew that human beings are limited in time and space, she could not seem emotionally or practically to admit it, or to limit her own obligations to those she could fulfill without strain. When she was involved in one of her many projects she drove herself and those with her almost beyond the limits of endurance. What was the source of this implacable drive? Perhaps it was a terrible fear, which she could never admit to consciousness, that many of the human ills she felt impelled to remedy were incurable except by the expenditure of powers beyond human capacity.

It may have been well for her that her death came unexpectedly and quickly, on a day when she was particularly enjoying the country, and had been made happy by the receipt of the first press copy of her latest book, *Psychiatry in the Medical Specialties* (McGraw-Hill), and when she was looking forward to setting out within a week on her usual summer trip to see her colleagues abroad.

Infantile Experience and Adult Behavior in Animal Subjects

II. Age of Separation from the Mother and Adult Behavior in the Cat

PHILIP F. D. SEITZ, M.D.

THE PRESENT EXPERIMENT is one of a series,[20-25] investigating the effects of infantile experiences upon adult behavior in animal subjects. The aim of this experiment was to investigate how age of separation from the mother during infancy may influence adult behavior in the cat.

Separation from the mother varies naturally in the cat—from as early as 2 weeks to as late as 6 months of age. Kittens separated from the mother at 2 weeks of age "cry" intensely—with their peculiarly human-sounding wail—for as long as a week or more. At this early age of separation from the mother, some kittens exhaust themselves and die. Separation from the mother at 6 weeks of age produces sporadic "crying" for only a day or so. Removal from the mother at 12 weeks of age produces no "crying," and relatively little indication of separation trauma.

In the present experiment, kittens were removed from their mothers at three different ages—2, 6, and 12 weeks of age. Insofar as possible, all other life experiences were standardized and controlled. When the animals reached adulthood, their behavior was compared on a series of tests.

Method

The animals used in this experiment were non-isogenic ("alley") cats. Pregnant female cats were brought to the laboratory about two weeks before expected delivery. This gave the mothers time to become familiar with the new food and surroundings before their litters were born. They were fed milk and a vitamin-supplemented mixture of horsemeat and mackerel. They were housed individually in roomy, metal cages with wood shavings on the floor, and a shelf on the back wall for lounging.

When the litters were born, they were culled to 3 kittens per litter (Plate I—1). The remaining 3 kittens in each litter were assigned randomly to 3 experimental groups.

Kittens assigned to Group I were separated from their mothers at 2 weeks of age.

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Technical assistants: Misses Betty Iffland, Daisey Dimitroff, Judy Ross and Mrs. Sandra Powell. Dr. T. C. Toops assisted in the feeding conflict tests. Color photography by Mr. Fred Hartmann (Ektachrome, daylight-type, electronic flash, Leica camera).

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Until they were old enough to feed themselves, by lapping milk from a saucer, the Group I (early-weaned) kittens were given milk from medicine droppers (Plate I—2). Handfeeding of the Group I kittens was done impersonally, without holding or comforting the animals, to avoid providing them with substitute mothering.

Group II kittens were removed from their mothers when they began to wean themselves spontaneously, by lapping milk from saucers. This occurred at around 6 weeks of age (Plate I—3). Group III kittens were left with their mothers until they were 12 weeks old (Plate I—4).

Six mother cats and a total of 18 kittens were used in this experiment. Employing the split-litter technique, the 3 kittens of each litter were divided among the 3 experimental groups. This tended to randomize the effects of genic and maternal behavior variables among the 3 experimental groups. Each experimental group consisted of 6 kittens—3 males and 3 females—one from each of the 6 mother cats.

When the kittens were removed from their mothers, they were housed identically in individual living cages for the rest of their lives; and their life experiences were kept as standard and identical as possible. They were fed, exercised, weighed, vaccinated for distemper, treated for mites, and given other medications—according to standard procedures for all animals.

When the animals reached adulthood, their behavior was observed and compared on a series of tests. The adult behavior tests are described in connection with the results obtained. The results of the tests are presented in two ways: (1) graphs comparing mean performances of the animals from the 3 experimental groups; and (2) photographs of 3 representative cats from the 3 experimental groups, illustrating typical performances on the various behavior tests (Plate I—5).

The literature on this general method of research has been reviewed extensively and evaluated critically by Beach[1] and by King.[12]

Results

The adult behavior tests were begun when the experimental animals were 9 months old. Tests were done on each animal in a standard manner, at the same time of day. The tests were repeated daily for 10 to 20 successive days, to obtain a representative sample of the animals' behavior on each test. The mean score of each animal was computed for the 10 to 20 replications of each test. The mean for all 6 animals in each experimental group was then computed, and these means compared. The behavior of male and female animals was found to be indistinguishable on the tests used, so their scores were totalled together. Analysis of variance was not done. Differences in adult behavior among the 3 experimental groups were inferred from the consistency of behavior patterns on related tests.

Test I: Behavior During Exercise Period

The first test consisted, simply, of observing the behavior of the animals during their daily exercise periods. Three animals at a time, one from each experimental group, were taken from their cages and placed on the floor of the animal room, where they were observed for 15-minute periods. Observations were made of random movement, and of a goal-directed movement in the form of jumping on and off a ledge. Random movement was recorded by stopwatches, and ledge-jumping by counting the number of jumps during each exercise period. The test was repeated daily, 5 days a week, for 4 weeks—a total of 20 tests for each animal.

The results of this test revealed that Group I (early-weaned) animals were the most randomly active. Group II and III animals showed less random movement but more goal-directed movement in the form of ledge-jumping (Plate I—6 and 7).

Figure 1 illustrates the results of this test. The bars in this graph represent averages or means for all animals in each experimental group (on 20 consecutive daily tests). Random movement is considerably

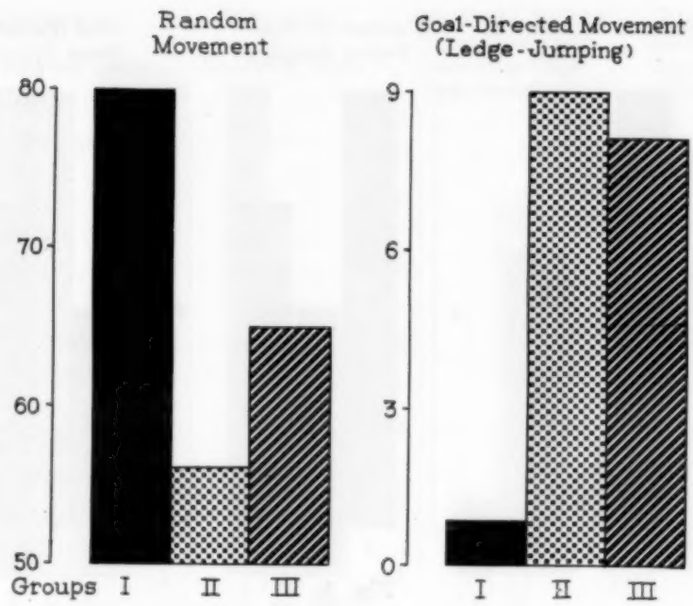

Fig. 1.

higher in Group I animals. Ledge-jumping is much more frequent in the Group II and III cats.

Test II: Emergence from Home Cage

The next several tests were a series of increasingly stressful novel situations. These tests were done to study the animals' adaptive reactions and proneness to anxiety under stress in adulthood.

In the first test of this series—the least novel and therefore least stressful for the cats—observations were made of the animals' reactions to a slight change in the daily routine of their exercise periods. Instead of lifting the cats to the floor from their home cages—which was the usual routine—the cage doors were simply opened and the cats left to get themselves out onto the floor of the room. The test was repeated daily, 5 days a week, for a total of 10 tests.

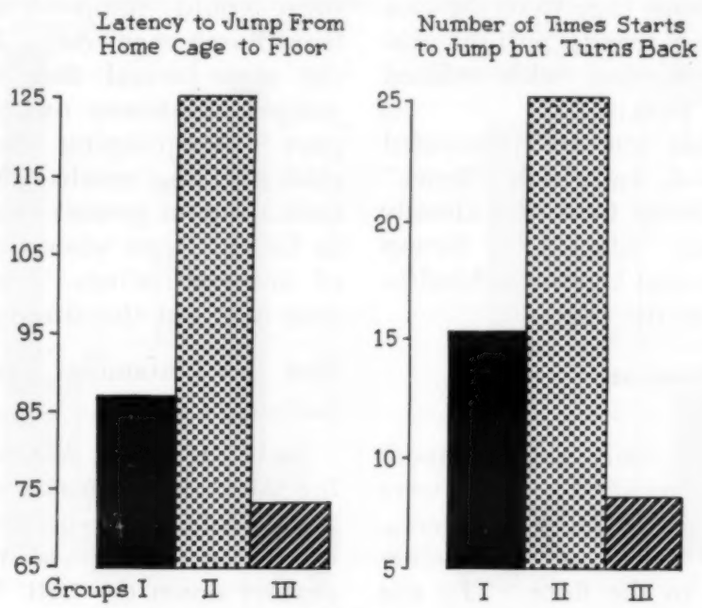

Fig. 2.

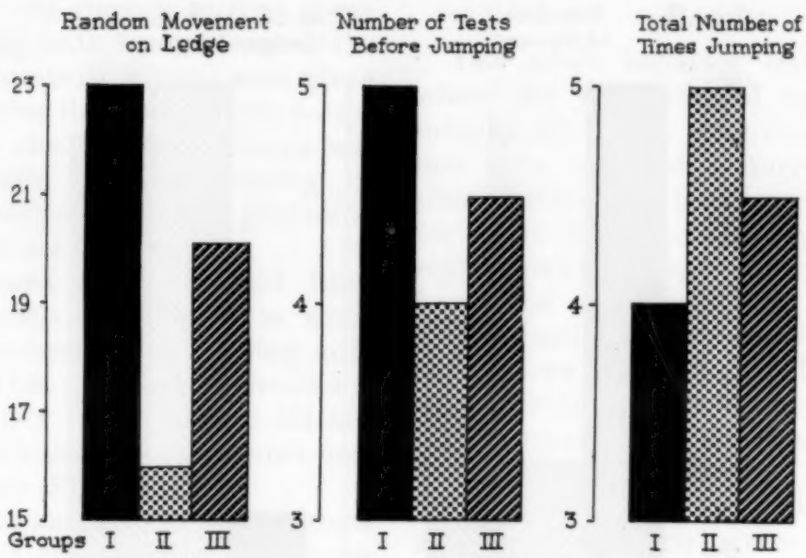

Fig. 3.

Figure 2 is a bar graph illustrating the results of this minimally stressful test. The bars on the left indicate the length of time it took the animals from the 3 experimental groups to leave their home cages. The bars on the right represent the number of times the animals in the 3 groups started to emerge from the home cage, and then turned back. In both of these measures, the Group II cats showed greater reluctance to leave the home cage than animals in Groups I and III. The graph also demonstrates that the Group I animals were slower to leave the home cage than the cats in Group III. These results will be discussed later in connection with related findings from other tests.

The results of this test are illustrated further by Plate I—8, in which "Spots," the representative Group I cat, has already left the cage, whereas "Blackie," a Group II cat, can barely be seen lagging behind in a shadowed corner of the cage.

Test III: Jumping from an Unfamiliar Ledge

The next test was only slightly more stressful for the animals. The cats were placed on an unfamiliar ledge. Observations were made of the time lapse before they jumped down to the floor. The test was repeated daily for ten days.

Plate I—9 illustrates this test and its results. "Spots," the Group I cat, is seen still crouched on the ledge. "Blackie" and "King," representing Groups II and III, have already left the ledge and are down on the floor of the laboratory.

Figure 3 illustrates the results of this test. The bars on the left show that Group I animals were the most restlessly active on the ledge (compare random movement during exercise periods). The center group of bars demonstrates that Group I cats required the greatest number of tests before they would jump (compare emergence from home cage test). The set of bars on the right reveal that Group I animals jumped the fewest number of times (compare ledge-jumping during exercise periods). These results are interpreted as an indication of greater proneness to anxiety in Group I cats when exposed to the stress of novel situations. The additional stress tests bear out this finding and conclusion.

Test IV: Unfamiliar Enclosures

Carrying Cage

In the text test, somewhat more stressful for the animals, each cat was placed in a small, unfamiliar carrying-cage in which it was taken from the animal room to a laboratory down the hall. The test was done daily for 10 days.

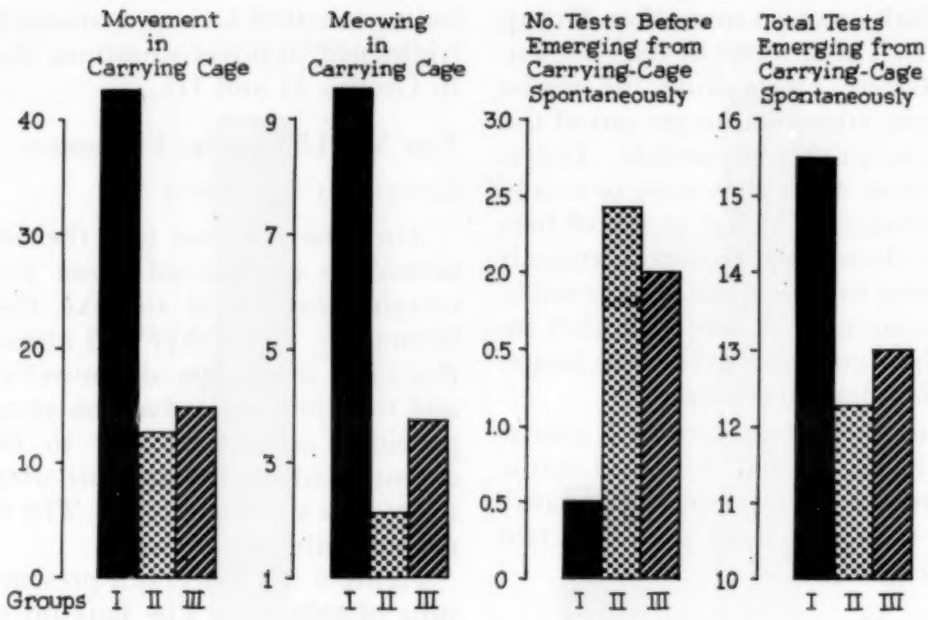

Fig. 4.

In Plate I—10, "Spots," the Group I cat, may be seen trying to get out of the carrying cage before the cage door is fully open. In Plate II—1, "Blackie," the Group II cat, remains in the carrying cage, even after the door has been fully opened (compare reluctance of Group II animals to leave the home cage). Plate II—2 shows "King," the Group III cat, exploring the unfamiliar carrying cage (compare goal-directed activity during exercise periods).

Figure 4 is a bar graph of this test's results. The bars on the left show that Group I animals were most restlessly active in the carrying cage (compare random movement during exercise periods and restless activity on ledge in the second stress test). The next group of bars indicate that

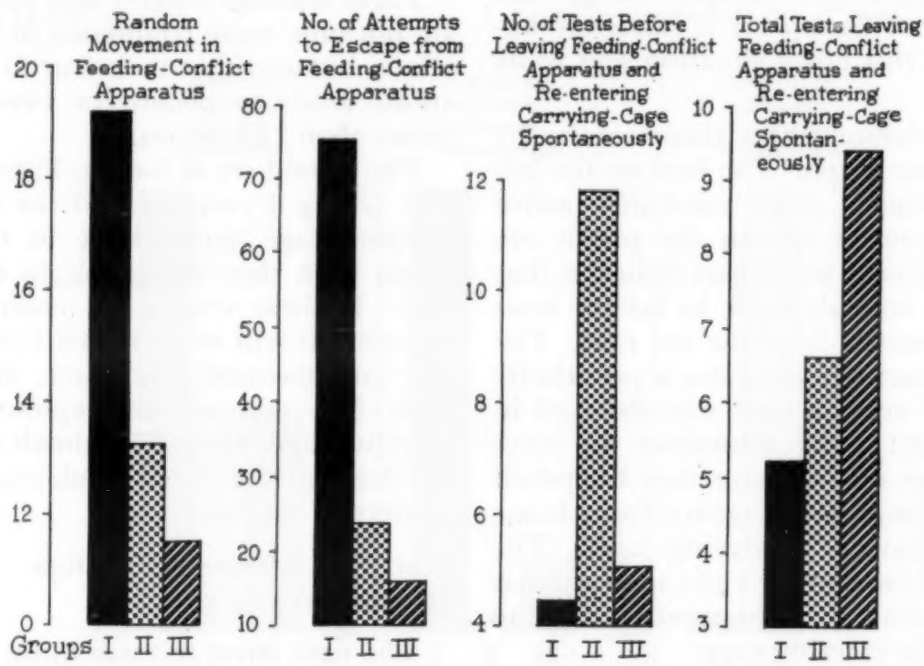

Fig. 5.

Group I animals meowed more than Group II and III cats. The next set of bars demonstrates that Group I cats, after the fewest number of tests, attempted to get out of the carrying-cage as quickly as possible. This is a measure of how eager they were to escape from the enclosure. The last group of bars on the right show that Group I animals left the carrying cage as quickly as possible on the largest number of tests—another indication of their greater eagerness to escape from the unfamiliar enclosure.

Throughout their lives, Group I (early-weaned) animals reacted to novel situations with greater anxiety—or "expectancy of danger"—than cats from the other two experimental groups.

Test V: Unfamiliar Enclosures

Plastic Test Cage

The next test was slightly more stressful. The cats were placed one at a time in another unfamiliar enclosure—a plastic test cage with a grid floor—and their reactions were observed. This procedure was repeated daily for 10 days.

Plate II—3 and 4 illustrate this test and its results. "Spots," the Group I cat, is frightened and tries to escape. "King," the blond cat from Group III is relatively undisturbed in this novel situation and waits quietly.

Figure 5 demonstrates these results by means of a bar graph. The bars on the left show how much more randomly active were the Group I cats in the plastic enclosure. The next set of bars indicates that the Group I animals made by far the most attempts to escape from the test cage. The next set of bars demonstrates a peculiarity of Group II animals that was observed in previous tests: their reluctance to leave whatever cage or enclosure they happened to be in (compare emergence from home cage and behavior in carrying cage). The last group of bars on the right indicate that Group I animals were the most resistant to reentering the carrying cage.

These results are interpreted as further indication that Group I animals are more frightened in novel situations than the cats in Groups II and III.

Test VI: Unfamiliar Enclosures

Carrying Cage Again

After the previous test, the cats were returned to the animal room in the same carrying cage used to take them to the laboratory. Since they had already been in this cage, it was less of a novelty for them, and therefore somewhat less stressful. This provided an opportunity to observe the extent to which the animals adapted themselves to a stress situation. The test was repeated daily for 10 days.

Figure 6 is a bar graph presenting the results of this test. The bars on the left reveal that Group I animals were the most restlessly active in the carrying cage. If this graph is compared with Figure 4, it will be seen that Group I cats were even more active in the carrying cage on their return to the animal room than they were on the earlier exposure to this unfamiliar cage. Group II and III cats, on the other hand, show a considerable decrease in their restless movements within the carrying cage upon being returned to the animal room.

These findings suggest that Group I cats are not only more frightened in novel situations, but also that their fear in these situations tends to persist, or even increase, rather than "adapt-out."

The second set of bars in Figure 6 shows that Group I cats meowed far less in the carrying cage, going back to the animal room, than they did going to the laboratory. If these results are compared with Figure 4, it will be seen that Group II and III cats meowed the same amount on their first and second exposures to the carrying cage. Group I animals did appear to demonstrate some "adapting-out" of anxiety in this measure.

Test VII: Intense Stimulation

With Light and Sound

The next stress test was quite a bit more intense. After being placed in the plastic

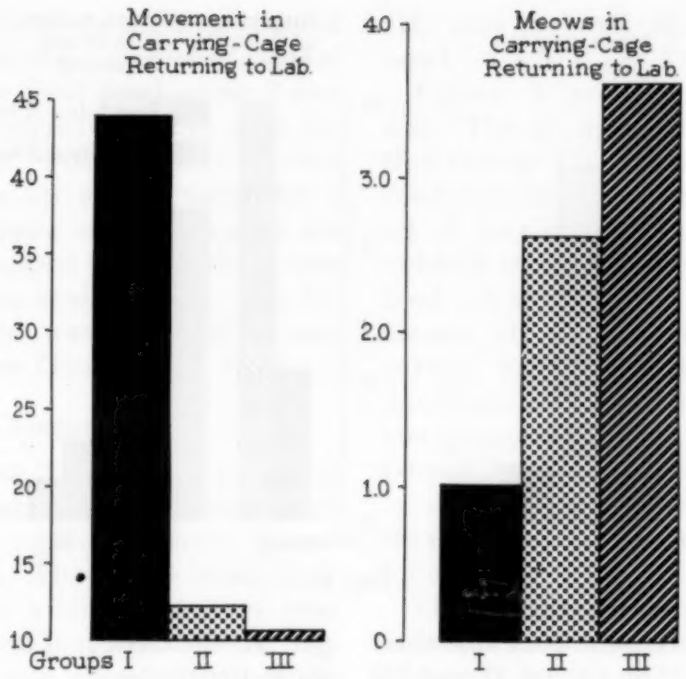

Fig. 6.

test cage, intense visual and auditory stimulation was begun, by shining bright lights on the cat and ringing a loud bell. The test was repeated daily for 10 successive days.

Plate II—5 shows "Spots," the Group I cat, trying to escape. "King," from Group III, is less disturbed by this novel experience (Plate II—6).

Figure 7 is a bar graph of this test's results. The bars on the left show that Group I animals, as usual, were the most restlessly active during the visual and auditory stimulation.

Plate II—7 and 8 show typical behavior patterns of the animals when the bright lights and bell were turned off. The Group I cats, represented by "Spots," tended to

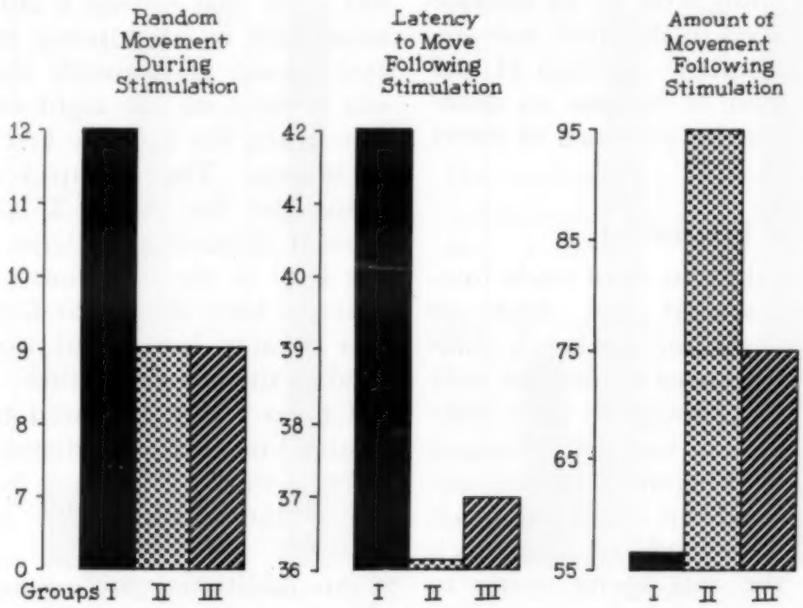

Fig. 7.

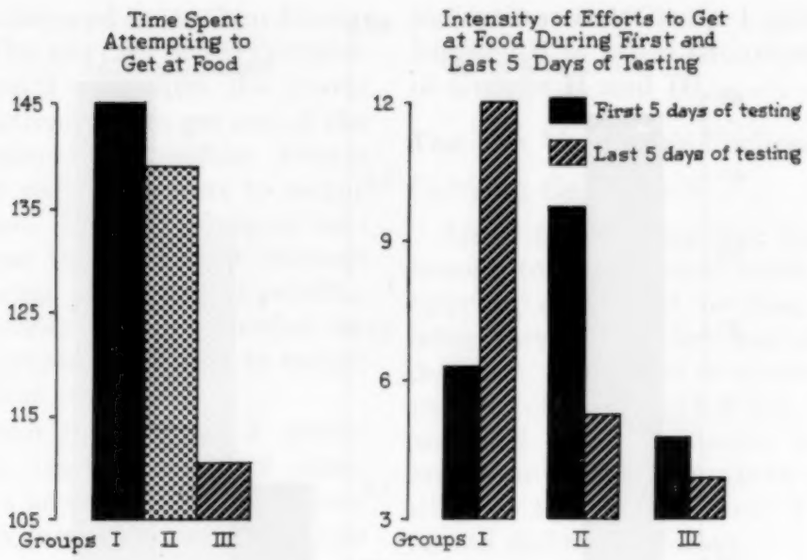

Fig. 8.

"freeze" in one place, contrary to their usual hypermotility. The Group II and III cats tended to explore and investigate the apparatus once the intense stimulation had stopped. These results are illustrated graphically in the center group of bars, and by the group of bars on the right, in Fig. 7.

Throughout their lives, the behavior of Group I animals in novel situations tended to be so disrupted by emergency reactions of startle, anxiety and alarm that they were relatively unable to investigate the situation they were in, or to discover the most effective ways of coping with it. (A notable exception will be seen in the final test—reaction to feeding conflict). Group II and III cats did not tend to become so disorganized by fright in the presence of novel situations.

Test VIII: Feeding Frustration

In the next test, the cats were made hungry by fasting for several days. Each cat was then given a bowl of mackerel, their favorite food, and allowed to eat for only 10 seconds: just long enough to whet their appetites. A wire screen was then clamped over the food bowl. The animal could still see and smell the food but could not reach it. Observations were made of how much time and effort the cats spent trying to overcome the obstacle in their attempts to get at the food. The test was repeated daily for 10 days.

The results of this test are illustrated by Plate II—9 and 10. The Group I animals tended to become frantic and disorganized in their efforts to get the food. "Spots" is seen in an attitude of fixed absorption with the screen-covered bowl. "King," the Group III animal, turns away from the frustrating situation after finding it impossible to get the food.

Figure 8 illustrates the results of this test by means of a bar graph. The bars on the left show that Group I animals spent the most time in attempting to get the food, and Group III animals the least. The 3 sets of bars on the right represent a division of the test into the first and last 5 days of testing. The Group I animals, represented by the set of 2 bars at the left, showed increasingly intense efforts to reach the food as the test went on. The next 2 pairs of bars show that Group II and III cats became less intent upon getting the food as the test proceeded.

Group I cats appeared to be "obstacle-fixated" on this test, whereas Group II and III cats would turn away from the frustrating situation when they were unable to solve it.

An additional finding on this test was that 2 of the Group III cats discovered a

way to get some food from the wire-covered bowl. After several days of rather playful investigation of the food bowl, these 2 cats discovered, independently, how to turn the bowl upside down. Then, if they turned the bowl right-side-up again, they had a pool of mackerel juice on the floor of the cage, which had dripped through the screen when the bowl was upside down. No behavior of this kind was observed in any of the animals from Groups I or II.

Test IX: Feeding Competition

Plate III—1 and 2 illustrate a test of feeding competition. Cats from the different experimental groups were paired against each other. They were made hungry by fasting, and a single bowl of food was presented to each pair of animals. Observations were made of competitive behavior toward each other in their attempts to gain possession of the food. As usual, the test was repeated daily for 10 successive days.

In Plate III—1, "King," the Group III cat, may be seen dominating "Spots," the representative of Group I. In Plate III—2, "Blackie" and "King," from Groups II and III, may be seen sharing the same food bowl.

Figure 9 presents the results of this test. The group of bars on the left shows that Group III animals were the most successful in reaching the food first. The next set of bars demonstrates that the Group I animals took the longest time to reach the food. The next set of bars shows that Group III animals spent the most time eating, indicating that they were most dominant in the feeding competition. The last group of bars on the right shows that Group I animals were the most aggressive in the feeding competition tests, although they were least successful in getting the food.

Figure 10 summarizes the different amounts and kinds of aggressive behavior observed in the feeding competition test. The bars on the left represent physical aggression in the form of pushing, pawing, biting, clawing and swiping. Group I animals were the most physically aggressive. The next set of bars represents vocal aggression in the form of growling, snarling and hissing. Group I animals exhibited no vocal aggression, despite their considerably

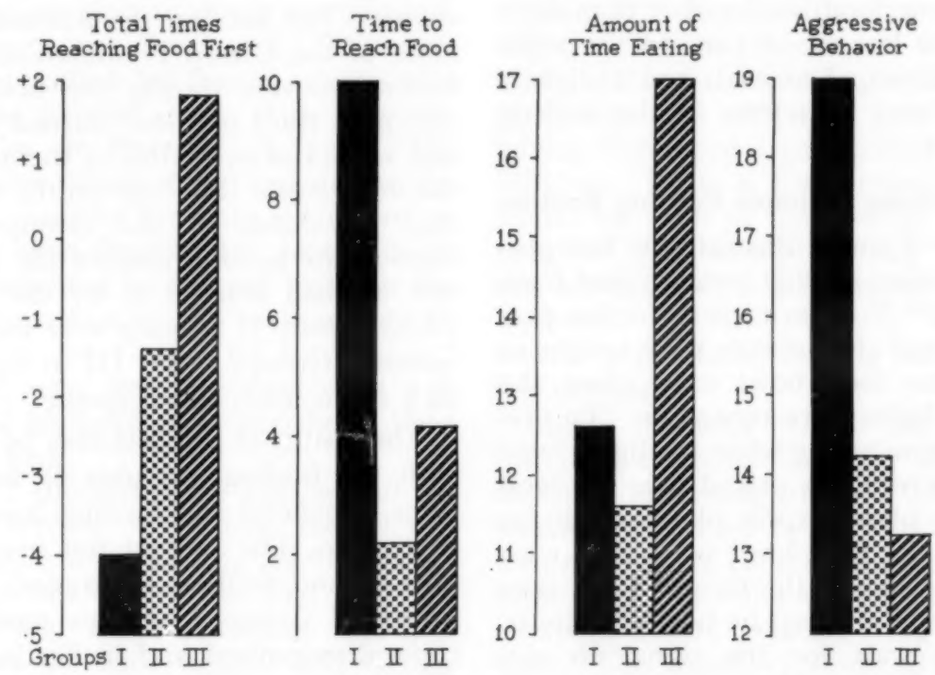

Fig. 9.

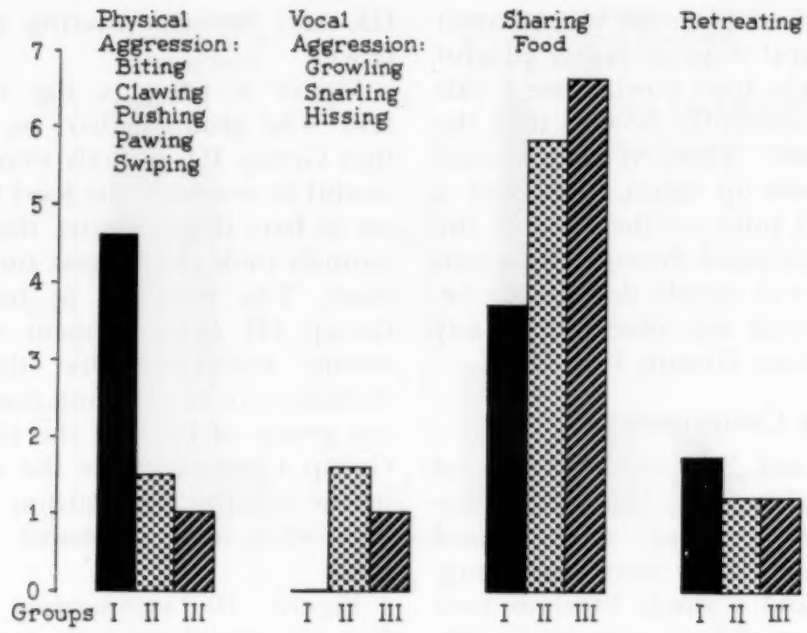

Fig. 10.

greater physical aggression. Groups II and III cats were approximately equal in vocal aggression and physical aggression. The next group of bars demonstrates that Group I animals shared food the least on this test, and Group III animals shared food the most. Group II and III animals, when paired against each other, tended to share the same food bowl rather than fight over it. The last set of bars on the right shows that Group I animals had a slightly greater tendency to retreat in the feeding competitions.

Test X: Learning a Simple Feeding Routine

Plate III—3 and 4 illustrate the first portion of a feeding conflict test, adapted from Masserman's[16, 17] experiments. In this portion of the test the animals were taught to eat from the food bowl only when the bright spot lights were turned on. To prevent them from eating when the lights were off, a wire screen was placed over the food bowl. In the photographic plates, the lights are off and the food bowl is covered with the screen. "Spots," the Group I cat, tries to get the food anyway; he has difficulty in learning to wait for the signal to eat. "King," the Group III cat, waits patiently for the signal to eat even though he is very hungry from fasting. The Group I animals took 3 weeks, on the average, to learn this simple feeding routine. The Group III animals learned it in 1 week.

Figure 11 demonstrates the differences among the 3 groups of animals in how quickly they were able to learn this response. The bars on the left indicate that none of the Group I animals learned the feeding routine during the first week of testing, a third of them learned it the second week and two-thirds of them learned it the third week. The bars on the right show that two-thirds of the Group III cats learned the feeding routine the first week, and all had learned it by the end of 2 weeks. Group II animals were intermediate between Groups I and III in how rapidly they could learn this response.

The results of this test may be compared with the findings on tests of novel situations in general and feeding frustration in particular. The present test involves both novelty and feeding frustration. The behavior of Group I animals tended to become disorganized and ineffective in these types of test situations, which interferred

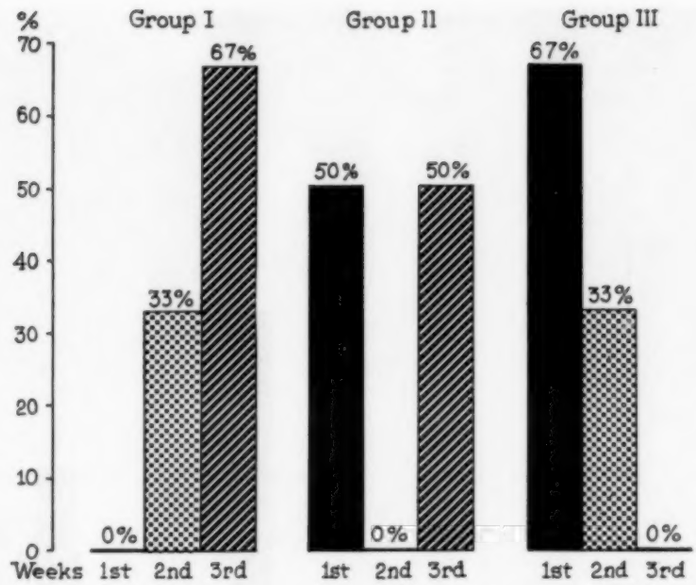

Fig. 11.

with their learning a simple feeding routine.

Test XI: Feeding Conflict

After the cats had learned the feeding routine thoroughly and performed it without error on 10 consecutive trials, a feeding conflict was introduced. When the signal light was turned on, and the cat performed the correct response of going to the food bowl to eat, an electric shock was administered through the floor grid. The cat's hunger, intensified by fasting, drove him to eat. The painful shock, if he now ate, deterred him. In Plate III—5, "Spots," the representative Group I cat, remains at the food bowl, pausing for only a moment in his eating, even though the electric shock is on, as indicated by the red light on the electrical apparatus in the background. In Plate III—6, the Group III cat, "King," has backed away from the food bowl and has averted his head from the signal light when shocked.

Figure 12 illustrates the timing and intensity of feeding inhibitions that developed in response to feeding conflict. This graph shows the weight loss that occurred during the four weeks of testing. Group I animals lost the least weight, and Group III animals the most, indicating that the Group III cats were most susceptible, and Group I cats least susceptible, to the development of severe, generalized feeding inhibitions in response to feeding conflict. The intense feeding inhibitions that developed mainly in Group III animals were not confined to the feeding conflict situation, but became generalized: the cats then refused food in any form, no matter where or how it was offered.

Plate III—7 and 8 illustrate the striking difference in the reactions of Group I and Group III cats to feeding conflict. "Spots," of Group I, is still alert and strong, not having developed a generalized feeding inhibition. With a little coaxing, "Spots" would eat even in the feeding conflict apparatus. The Group III cat, "King," on the other hand, is seen to be dazed and weakened by lack of food, due to the severe, generalized feeding inhibition he has developed.

Figure 13 shows "King," the Group III cat, in a catatonic-like state after further exposure to feeding conflict. This response was first described by Masserman[16] in his feeding conflict experiments with cats. A technician is moving the cat about in different positions, which "King" does not resist. This dazed, catatonic-like condition is not due to the intensity of the electric

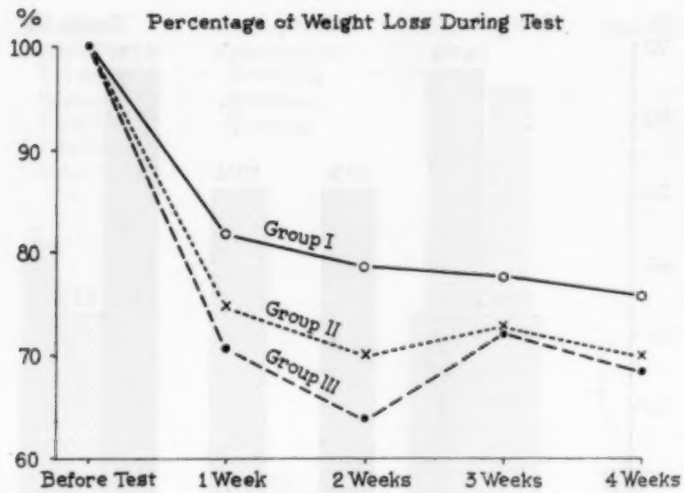

Fig. 12.

shock, but to the conflict between its desire to eat and its fear of shock if it does eat. This point is readily proved by the fact that shock alone, even if very intense, will not produce these symptoms in cats. Catatonic-like states in cats, and severe feeding inhibitions produced by feeding conflict, can usually be reversed quickly by administering bitemporal electroconvulsive shocks.

Miscellaneous Observations

In addition to the preceding tests, a number of other observations were made during the course of the experiment. One of these had to do with the social behavior of the animals from the 3 experimental groups—their relationships to each other and to the experimenters.

The Group III cats throughout their lives tended to be more docile, friendly and object-related, both to other cats and to the experimenters. In contrast, the Group I animals appeared to be more suspicious, tentative and cautious in their relations with others cats and with the experimenters. Group I cats were much more prone to hiss, scratch and bite, when frightened, than animals from Group III.

Another finding was the development of a chronic, asthma-like, respiratory wheezing syndrome in two of the cats from Group I. This condition developed following the feeding frustration tests, occurring at approximately the same time in 2 of the Group I cats, but in none of the animals from the other experimental groups. Veterinary consultants were unable to diagnose the condition, which they reported did not closely resemble the known respiratory infections in cats. A blood smear from one of these animals revealed a moderate eosinophilia. The possible significance of these respiratory conditions will be discussed later.

Discussion

Summarizing the results of this experiment: Group I animals, removed from their mothers at 2 weeks of age, were the most randomly active, but showed the least goal-directed movements throughout their lives. They were the most anxious in novel situations. They were the most disturbed by, and slowest to recover from, intense stimulation. They were the most persistent, but also most disorganized, in their efforts to get food when hungry and frustrated. They were the most aggressive, but least successful, in feeding competitions. They had the least tendency to share food. They were the slowest to learn a simple feeding routine. But they were the least susceptible to severe, generalized feeding inhibitions in response to feeding conflict. Throughout their lives the Group I animals were more suspicious, fearful and aggressive both toward other

Fig. 13. Test XIc: King in catatonic-like state after further exposure to feeding conflict.

cats and toward the experimenters. Two of the Group I cats developed a chronic asthma-like respiratory wheezing syndrome following the feeding frustration tests in adulthood.

These findings follow much the same general patterns and principles that were found to apply in other experiments of this series.[20-25] Very early infantile traumata have persistent effects upon adult behavior, lasting throughout the lifetime of the animal, and affecting practically every modality of behavior that is tested. These findings correspond with a principle of development discovered in experimental embryology: that the earlier a trauma occurs in the development of an organism, the greater the number of structures that are affected by it.

The specific findings of the present study will now be discussed separately.

General Activity

Throughout their lives, the Group I cats, separated from their mothers at a very early age, exhibited a general restlessness or hypermotility of random movement, with relatively little capacity for resting quietly. This finding suggests that the so-called "activity level" of an organism can not be assumed to depend entirely upon genic or constitutional factors. Infantile experiences, especially very early and traumatic experiences, may contribute significantly and more-or-less permanently to the organism's general activity level.

The mechanisms by which early separation from the mother may produce a persistent hypermotility of random movement cannot be stated definitely on the basis of the present experiment. One possible explanation (discussed further under "Goal-directed Activities") is the greater tendency toward vigilance, or "expectancy of danger," in Group I animals. The severe infantile trauma of separation from the mother at only 2 weeks of age, followed by intense and prolonged "crying" for a week or more, may have induced a vigilant "readiness for action" in these animals, with an associated sustained heightening of muscular tonus. In the absence of danger, this muscular tension may have been discharged as a so-called "leerlauf" or "vacuum" reaction,[14] thereby contributing to a general hypermotility of random movement.

Goal-directed Activity

The Group III animals, those that remained with their mothers until 3 months of age, showed the greatest amount of goal-directed activity, in contrast to random movement, throughout their lives. This finding was evident in as simple a test as behavior during exercise periods, and appeared in more complex forms such as learning a feeding routine and discovering a way to get food in the feeding frustration test.

The goal-directed effectiveness of Group III cats cannot be separated from two other characteristics of these animals: their relative lack of fear in novel situations, and their object-relatedness toward other cats and toward the experimenters. The behavior of Group I animals tended to become disorganized by fear in novel situations, which was not the case with cats from Group III. Similarly, in tests such as feeding frustration and learning a feeding routine, the suspiciousness of Group I animals toward the experimenters made them more cautious and tentative about their participation in these tests. The Group III animals, on the other hand, appeared to enjoy these opportunities for contact with the experimenters and more eagerly cooperated in the tests.

Still another factor which may have contributed to the goal-directed behavior of Group III animals was their relative freedom from persistent, intense vigilance reactions. Group I animals appeared to maintain a chronic, sustained "expectancy of danger." Cats from the other experimental groups were calmer and less vigilant. The Group III cats were more exploratory, experimental, and even playful in their general behavior—which may have resulted from the relative absence of vigilance in these animals. The same concept has been applied by Hediger[8, 9] to the play and training of wild animals in captivity.

Reaction to Novel Situations

The behavior patterns of Group I and Group III animals have both their advantages and their disadvantages, so far as adaptation and survival are concerned. The vigilant alertness, "expectancy of danger" and readiness for action of Group I animals would probably have survival value in situations requiring fight or flight. On the other hand, their tendency to become obstacle-fixated and disorganized in situations involving feeding frustration might lessen their chances of survival. The tendency of Group III cats to expect "all to be well" may have allowed these animals greater freedom for trial and error experimentation with the environment, and more oppor-

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PLATE I

1. Mother cat with newborn kittens. Litter-mates are assigned randomly to the 3 experimental groups.
2. Group I kitten separated from its mother at 2 weeks of age. Early separation produces intense and prolonged crying.
3. Group II kitten beginning to lap milk spontaneously from a saucer at 6 weeks of age. Kitten will now be separated from its mother. Separation from the mother at this age produces sporadic crying for only a day or so.
4. Group III kitten still with its mother at 3 months of age. Separation from the mother at this age produces no crying.
5. Representative adult cats from Groups I, II, and III, ready for adult behavior tests. Left to right: "Spots," "Blackie," and "King."
6. Test Ia: Behavior during exercise period—random movement. Spots tends to be restlessly hyperactive.
7. Test Ib: Behavior during exercise period—ledge jumping. Blackie and King show less random movement, but more goal-directed movement in the form of ledge-jumping.
8. Test II: Emergence from home cage. Spots (Group I) emerges sooner than Blackie (Group II).
9. Test III: Reaction to novel situation—jumping from unfamiliar ledge. Spots takes longest to jump.
10. Test IV: Reaction to novel situation—carrying cage. Spots trying to escape before door is fully open.

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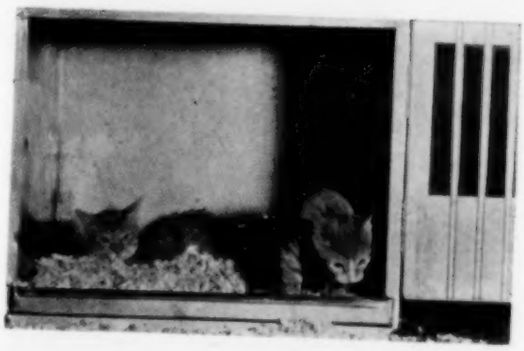

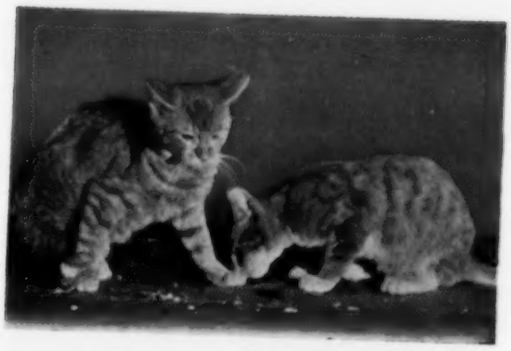

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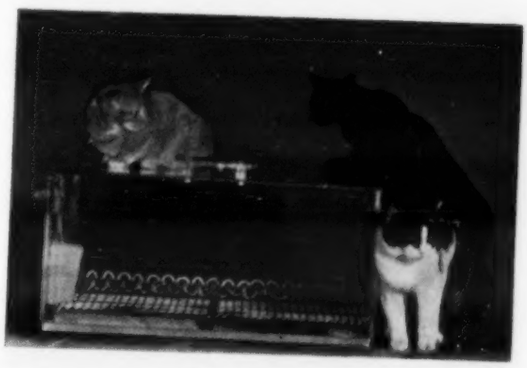

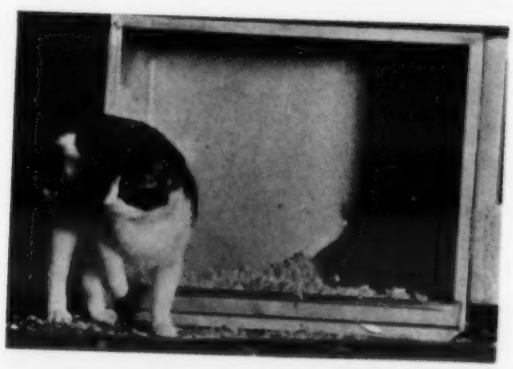

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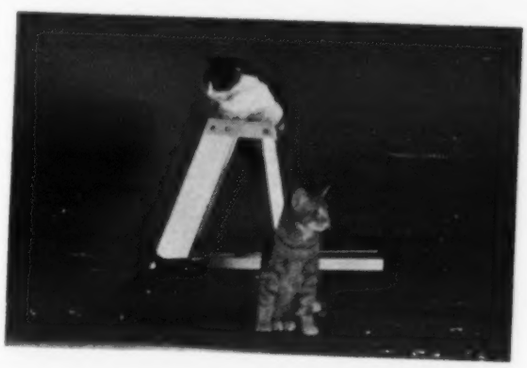

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PLATE II

1. Test IV: Blackie content to remain in carrying cage.
2. Test IV: King exploring the unfamiliar carrying cage.
3. Test V: Reaction to novel situation—plastic enclosure. Spots is frightened and tries to escape.
4. Test V: King is relatively undisturbed in this novel situation, waits quietly.
5. Test VIIa: Intense stimulation with light and sound. Spots is frightened and tries to escape.
6. Test VIIa: King turns his back to the bright lights, and averts his head from the loud sound. He is alert but calm.
7. Test VIIb: Behavior following intense stimulation. Spots "freezes," and remains motionless for some time.
8. Test VIIb: Blackie begins exploring the apparatus soon after the intense stimulation stops.
9. Test VIII: Feeding frustration. Spots intently absorbed with screen-covered food bowl.
10. Test VIII: King turns away from the frustrating situation when unable to get food.

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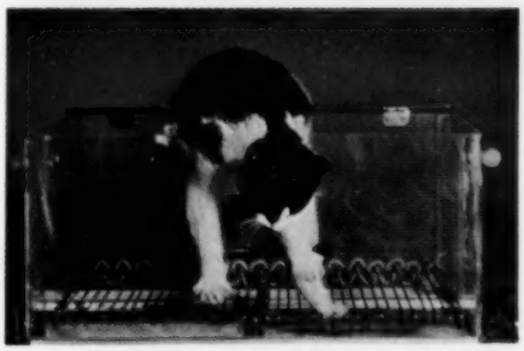

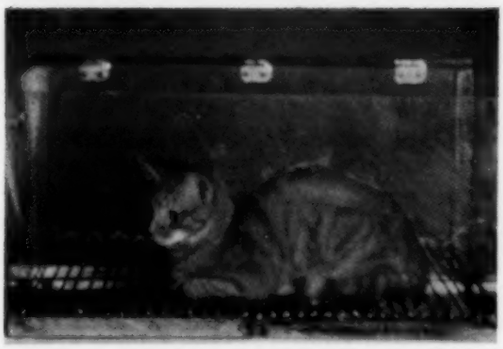

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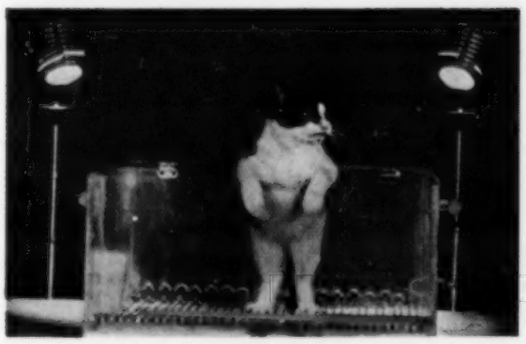

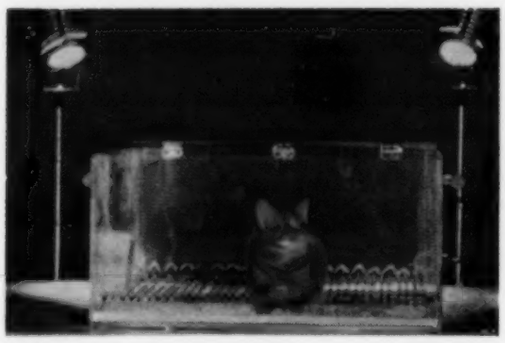

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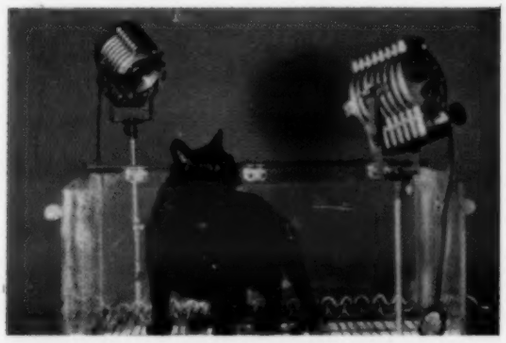

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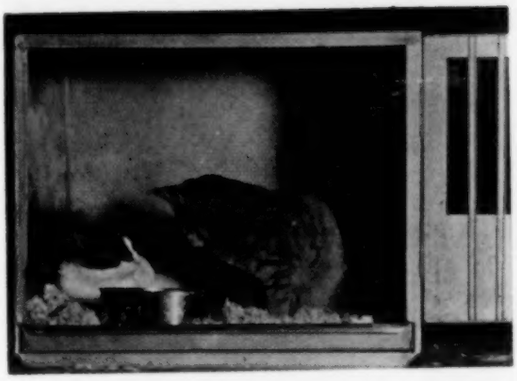
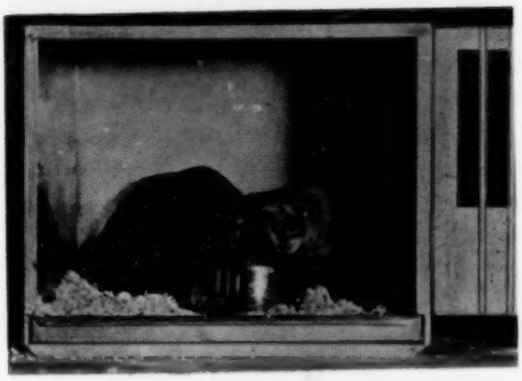
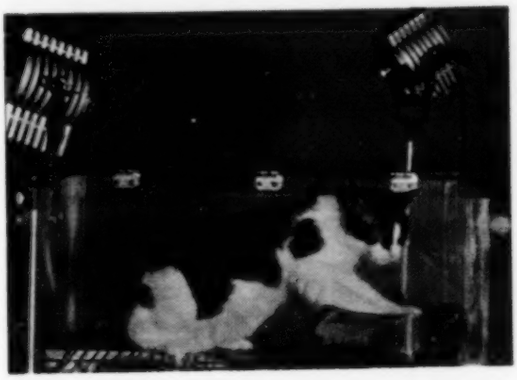
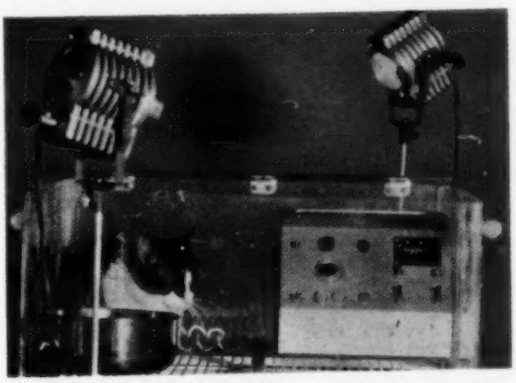
PLATE III

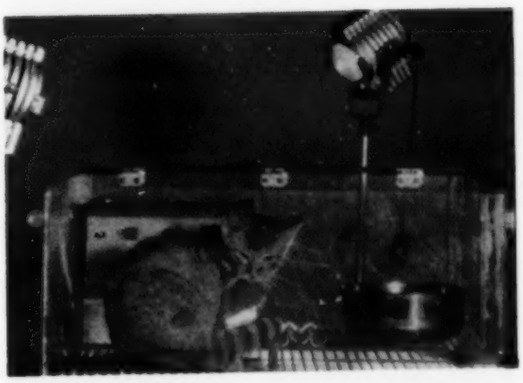
1. Test IX: Feeding competition. King dominating Spots in competition for food.
2. Test IX: Blackie and King sharing the same food bowl without fighting over it.
3. Test X: Learning a simple feeding routine. Spots has difficulty learning the routine. He tries to get food even though the signal lights are off and the food bowl is covered.
4. Test X: King learns the feeding routine quickly. He waits patiently for the signal lights to go on before approaching the food bowl and eating.
5. Test XIa: Reaction to feeding conflict. Spots pauses for only a moment in his eating, even though he is shocked through the floor grid if he eats.
6. Test XIa: King backs away from the food bowl and averts his head from the signal light when shocked for eating on signal.
7. Test XIb: Behavior following feeding conflict. Spots remains alert and strong, not having yet developed feeding inhibition in reaction to feeding conflict.
8. Test XIb: King is dazed and weakened by feeding inhibition which has developed in reaction to feeding conflict.

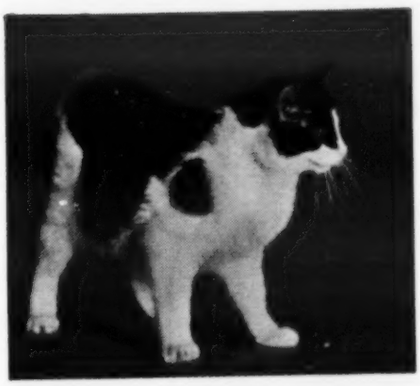












tunity for mastery through "intelligent" adaptations. However, Group III animals might conceivably be overoptimistic and complacent in certain situations, where their lack of alertness to possible dangers might cost them their survival. Although it is clear from this experiment that Group I animals are more prone to anxiety in novel situations, this finding does not necessarily mean that such behavior is always handicapping or maladaptive.

Recovery from Intense Stimulation

The reactions of the 3 experimental groups to intense stimulation followed the same patterns as their reactions to novel situations in general. However, the slow recovery of Group I animals following intense stimulation needs explanation. Since in other situations the Group I cats tended to be more alert, hyperactive and "ready for action," why were they not "up and doing" again quickly after the intense stimulation?

This question cannot be answered definitely on the basis of the present experiment. A possible explanation might be that the Group I cats exhausted themselves in their frantic efforts to escape from the intense stimulation, and for this reason may have needed a longer phase of immobility to recover from the stress. This explanation is not entirely satisfactory, however, since the Group I cats did not appear to be exhausted following intense stimulation, but "frozen" in a state of fear. The adaptive pattern of "freezing" in one spot is well-developed in cats, both as a reaction to danger and as a component of stalking behavior. In the present test, the "freezing" behavior was evidently a reaction to danger. On this basis, it may have represented merely another expression of increased proneness to anxiety in Group I animals. Whether such behavior is adaptively useful or handicapping would depend, once again, upon individual circumstances.

Obstacle-fixation in the Feeding Frustration Test

The Group I cats tended to become obstacle-fixated on the feeding frustration tests. In attempting to explain this finding, some relationships between goal-directed strivings, frustration and disintegration of goal-directed behavior will be reviewed briefly.

French[5] has described obstacle-fixated behavior as a result of frustration and its associated disintegration of goal-directed strivings. Fragments of the goal-directed pattern, particularly the "unsatisfied" (undischarged) motivational pressures toward the goal, tend to persist following frustration. These unconsummated motivational pressures may then be discharged as destructive attacks against the obstacle, or against substitute objects. Such a reaction occurs, however, only when the following conditions exist:

a) Intense commitment to hope of attaining (i.e., active desire for) the goal.
b) Conviction that the intensely desired goal has become unattainable.
c) Inability to accept a substitute.

Which of these three conditions, or combinations of them, apply to the Group I cats in the feeding frustration test? Were the Group I animals more intensely desirous of food? Were they more easily discouraged about the possibility of getting food? Were they less able to accept a substitute? Or did all of these conditions exist in the Group I cats?

Returning to the actual behavior of the animals in this experimental situation, the Group I cats did appear to be more eager for food—from the moment it was placed in the cage. The Group II and III cats did not appear to have been as disturbed, or made as hungry, by the period of fasting that preceded the test.

The Group I cats also appeared to be more quickly and easily discouraged about the availability of food, once the bowl was covered with a screen. Upon finding that

the screen could not be removed, the behavior of Group I cats rapidly disintegrated, changing to a sudden disorganized attack upon the food bowl. The Group III cats, by contrast, made less frantic initial attempts to remove the screen; and when the screen could not be removed, they turned away from the food bowl to meow, purr, look at and otherwise make contact with the experimenters.

These observations suggest also a greater tendency in Group III animals to turn to substitute activities, specifically in the form of contact with the experimenters. Group I cats, having poorer relations with the experimenters to begin with, may not have reacted to the experimenters as a possible source of substitute satisfaction.

From this discussion, it may be concluded that all 3 of the conditions, previously mentioned, contributed to the obstacle-fixated behavior of Group I cats in the feeding frustration test: intense desire for the food, quick discouragement about obtaining it and inability to accept a substitute.

Benedek's[2] concept about the development of "confidence" in the human infant appears to apply in this connection. She has described how repeated experiences of satisfaction from the mother gradually produce "confidence" in the child that, even if delayed, gratification will come eventually. With the growth of confidence, the child develops an ability to wait, at least for a while. In the present test, when the Group III cats could not get food immediately, they turned to the experimenters, purring and meowing, perhaps not merely as a substitute for food but possibly also as a way of soliciting food. To do this required some "confidence" that the experimenters would feed them.

In contrast to this behavior, the Group I animals appeared to have far less "confidence" that they would be fed, even though, except for the period of fasting that preceded this test, the experimenters had always provided them with ample food.

The desperate behavior of Group I animals on this test was not entirely inappropriate, however, to their actual experiences with the experimenters. When they were removed from their mothers at 2 weeks of age, they could see and smell the experimenters from their cages, but could not make direct contact with them as substitute objects. When the experimenters fed the Group I animals, they did this impersonally, without holding or cuddling the kittens. Therefore, even though the experimenters had always fed the Group I animals sufficiently their infantile drives for physical closeness and contact had been frustrated; and possibly as a result of this, "confidence" in the experimenters may have failed to develop in Group I animals.

Benedek postulated that "confidence" develops in infants largely as a result of satisfactory feeding experiences with the parent. In an extensive review of the "nature of the child's tie to his mother," Bowlby[3] concluded that feeding experiences are probably no more important in this connection than certain other forms of contact with the mother:

". . . a main point of my thesis is that no one of these responses (sucking, clinging, following, crying and smiling) is more primary than another and that it is, therefore, a mistake to give pre-eminence to sucking and feeding. . ."

Bowlby proposed that these component instinctual responses (and possibly others) become integrated as "attachment behavior," and that the young of each species is equipped with its own particular repertoire of responses that mature at rates specific for the individual species.

The findings of the present experiment appear to support Bowlby's thesis. "Attachment behavior" and "confidence" appear to develop not only as a result of feeding experiences but also in reaction to other forms of contact with the mother. Harlow's[7] observations on the attachment behavior of young rhesus monkeys also appear to fit this concept. When given a choice between 2 artificial mothers, one of which provided food from a bottle and the

other a surface of cloth that could be clung to, young monkeys that had been removed from their mothers at birth appeared to prefer the one they could cling to rather than the "mother" that provided food. The older findings of Hermann[10, 11] on primates also emphasize the importance of the clinging response in infantile "attachment behavior."

Aggression and Sharing in the Feeding Competitions

Although most aggressive on the feeding competition tests, the Group I animals were least successful in getting food. This finding seems paradoxical, but may perhaps be explained by the different infantile experiences of the 3 experimental groups. The Group I cats had less exposure to (and therefore opportunity for) competition with litter mates in infancy, having been removed from their mothers and placed in individual cages at 2 weeks of age. The Group III animals lived in the same cages with other cats for the longest period in infancy, an experience which may have taught them how to compete more effectively.

This finding and explanation is similar to one that was made in a previous experiment.[20] Rats raised in large litters were more successful in adult feeding competitions than animals from small litters, possibly because they had had more practice in learning how to compete as infants. The animals from large litters, for example, frequently competed in a way seldom observed in rats from small litters: viz., "rooting" under the opponent and flipping him up and over the back. Observations of infant rats in their litters revealed that "rooting" behavior of this kind is common in large litters, where the "pups" must push about under each other in order to reach one of the mother's nipples. In small litters, where there is more room and extra nipples, "rooting" behavior is less necessary and seldom occurs.

Although the Group III cats displayed more vocal aggression, and the Group I animals more physical aggression, during the feeding competitions, the conclusion may not be drawn that one of these forms of aggression is necessarily more or less effective than the other. The difference probably reflects mainly which animal was on the offensive, and which on the defensive. Group III cats tended to reach the food first, and also to maintain possession of the food bowl. The Group I animals had to become more and more aggressive in their efforts to dislodge the Group III cats from the food bowl. Group I cats, therefore, necessarily resorted to physical aggression, whereas the Group III animals could often repulse the attack and maintain competitive dominance with a warning snarl or hiss.

The peaceful sharing of food among Group II and III cats—most marked in the animals from Group III—may also be explained in part by their having had more experience during infancy in sharing the source of food with litter-mates. Whereas the Group I animals had had only 2 weeks of such experience, the Group III cats had 12.

Differences among the experimental groups in their relations with other cats may also have influenced the tendency to share food on this test. Group III cats, for example, which were the most "trusting" and "friendly" toward other cats, usually permitted Group II animals to share the same food bowl with them. One reason for this may have been that Group II animals, being rather "friendly" themselves, tended to approach the Group III cats and food bowl with soft purring and gentle rubbing motions. In contrast to this behavior, Group I cats more often attempted to "storm the fortress," making the otherwise "friendly" Group III animals defensively aggressive and possessive of the food. These observations suggest that the animals' reactions to the feeding competitions cannot be separated completely from their general behavior toward and relations with other cats.

Reactions to Feeding Conflict

Why were the Group III cats the most

susceptible and the Group I animals most resistant to the development of severe, generalized feeding inhibitions in response to feeding conflict? Before attempting to answer this question, the feeding inhibitions themselves should be explained further.

As Masserman[16, 17] found originally, some cats exposed to this type of feeding conflict stop eating altogether, and refuse any kind of food no matter how or where it is offered. Cats are able to go without food for fairly long periods without appearing to be greatly weakened or disturbed. Feeding inhibition must be looked upon, therefore, as an adaptive pattern that is especially well-developed in cats. In nature, this pattern may have had survival value by protecting the animals from acting impulsively on their hunger drives, (instead of remaining vigilant), when dangerous enemies were near. As Hediger[9] observed: "The satisfaction of hunger and sexual appetite can be postponed, but not so escape from a dangerous enemy; and all animals, even the biggest and fiercest, have enemies."

The Group III cats, however, overdid their adaptive feeding inhibitions—to the extent that they weakened themselves and would have died except for the intervention of the experimenters. The Group I animals, on the other hand, tended to go on eating regardless of the danger, even though in other novel situations their behavior was often disorganized by fright. How can this be explained?

One possibility might be that Group III animals, having had little experience with situations of this kind, were relatively unprepared for severe stress and, as a result, were easily overcome by it. The Group I animals, on the other hand, being more familiar with intense stress may have been more prepared for it, and therefore more able to cope with it. This explanation begs the question to some extent. In what specific ways were the Group I animals more prepared, and the Group III animals less prepared, for this particular stress?

Part of the answer to this question may depend upon the intensity of the animals' motivations to eat. The Group I cats were observed on a previous test (feeding frustration) to be more intent upon getting food without delay. In the test of learning a simple feeding routine, Group I animals were so eager for food that they could not wait long enough to learn how to get it. Evidently, the drives to get and eat food were stronger in Group I animals than in the cats from Group III. More intense motivation to eat may have been one of the reasons that Group I cats overcame the feeding inhibitions, induced by feeding conflict, and ate in spite of negative reinforcement.

The explanation for these results may depend also upon differences in stress-tolerance and the mechanisms producing this. Little can be said about this question on the basis of the present experiment. The most likely mechanism promoting stress-tolerance in the Group I animals was their perpetual "expectancy of danger" and "readiness for action;" this may have kept them in a state of psychophysiologic preparation for emergencies. The Group I cats, although they reacted to every new situation with greater startle, sometimes becoming nearly frantic with fear, nevertheless were constantly, alertly adapting—one might almost say "shadow-boxing" with every minor stress they encountered. Stress was no stranger to the Group I animals, as it may have been for the cats from Group III.

The catatonic-like states that develop if the animal is forced to eat in the presence of negative reinforcement may be examples of the instinctive mechanism described by Menaker[18] in which the organism attemps to survive through submission. This mechanism operates in certain species by submitting to a more powerful adversary, who may then, through an innate inhibitory reaction to the signal of submission, be unable to consummate the act of aggression and therefore spare its victim. Lorenz[13-15] has described such behavior in timber wolves and turkeys, and considers it a survival mechanism that protects members of

the same species from unrestrained aggression by their own kind. It occurs particularly in species with extremely destructive weapons of attack, such as fangs and claws —which might include the cat family. This mechanism frequently "misfires" if manifested toward an animal of a different species. Should a turkey, for example, engage in a battle with a peacock, "the very mechanism which insures its survival in an aggressive encounter with another turkey spells its doom in this situation. For when, feeling that he has had the worst, of the fight, he submits by lying on the ground and exposing the base of his skull to attack, the peacock, who is not equipped with the innate inhibitory behavior pattern that is the answer to the signal of submission, attacks the turkey still more furiously. The increased virulence of the attack has in turn the effect on the turkey of making it still more submissive" (Menaker).

Catatonic-like states, which can sometimes be induced in cats by forced feeding conflict, have some similarities to the (possibly) instinctive pattern of survival through submission. The cat lies completely immobile and passive, allowing its limbs and body to be moved about in any position without resistance. However, the fact that this condition can be elicited only by conflict and not by shock alone may argue against this behavior being an example of the instinctive submission pattern.

Both the patterns of feeding inhibition and catatonic-like submission, which occurred most characteristically in Group III cats, represent passive-avoidance-withdrawal types of mechanisms, in contrast to the more active methods of mastery seen in Group I animals (*c.f.* also the active *vs.* passive behavior of Group I and Group III animals on the feeding frustration test). This observation coincides with the general activity patterns for the 2 groups of animals—Group I cats tending to be generally more active than the animals from Group III. From these parallels we may conclude that the behavioral "polarity" of activity-passivity, referred-to by Freud[6] in connection with human adaptation, is significantly influenced by the type and extent of traumatic experiences during infancy. Certain types and intensities of experiences must predispose to active mastery mechanisms, others to more passive adaptations. It may be significant that in the present experiment, the animals with the most contented, least traumatic early lives developed the more passive mechanisms of adaptation, whereas the more traumatized animals tended towards mechanisms of active mastery.

Once again, however, the general conclusion may not be drawn that one of these methods of adaptation is superior to the other. Both active and passive mechanisms of adaptation have their advantages and their disadvantages, depending upon the specific adaptive task and the psychophysiologic capacities of the organism.

The Asthma-like Respiratory Syndrome

The occurrence of an asthma-like condition in Group I cats is of interest for two main reasons. If a condition resembling bronchial asthma can be produced in cats, this would provide further opportunities for experimental psychosomatic studies of etiology and psychophysiology in this disease. Another possible significance of this observation is its suggestive relationship to clinical concepts[4] about the role of suppressed weeping in asthma. The wheezing syndrome occurred only in Group I cats, which had been separated from their mothers at 2 weeks of age and had cried intensely for over a week. Unfortunately, no data are available from this experiment on the crying patterns of the 2 Group I animals that developed wheezing and the 4 that did not. It would be of interest to do an experiment in which one group of early-weaned kittens were allowed to cry, and another group forced, by some form of negative reinforcement or punishment, to inhibit crying. The effects of this experience upon adult behavior, especially upon respiratory functioning under stress, could then be studied, possibly by techniques such

as those described by Ottenberg, Stein, Lewis and Hamilton[19] in their report on "Learned Asthma in the Guinea Pig."

Summary

Employing the split-litter technique, the kittens from several litters of non-isogenic cats were divided into 3 experimental groups. Group I kittens were separated from their mothers at 2 weeks of age, which is early in this species and causes intense "crying" for as long as a week or more. Group II kittens were separated from their mothers when they were found to have begun lapping milk spontaneously from saucers. This usually occurred at around 6 weeks of age. Group III kittens were forced to go on suckling for 12 weeks, by making no food other than the mother's milk available to them. At 12 weeks of age they were removed from their mothers.

Following separation from their mothers, the kittens in all 3 experimental groups were placed in identical, individual living cages, and their life experiences were standardized. When they reached adulthood, a series of behavioral tests were made. These tests revealed that Group I animals, removed from their mothers at 2 weeks of age, were the most randomly active, but showed the least goal-directed movements throughout their lives. They were the most anxious in novel situations. They were the most disturbed by and slowest to recover from intense stimulation. They were the most persistent but also most disorganized in their efforts to get food when hungry and frustrated. They were the most aggressive but least successful in feeding competitions. They had the least tendency to share food. They were the slowest to learn a simple feeding routine; but they were the least susceptible to severe, generalized feeding inhibitions in response to feeding conflict.

Throughout their lives the Group I animals were more suspicious, fearful and aggressive in their behavior toward other cats and toward the experimenters. Following the feeding frustration tests, 2 of the Group I cats developed a chronic, asthma-like, respiratory wheezing syndrome that veterinary consultants were unable to diagnose. The condition had certain similarities to bronchial asthma in humans, raising the question whether the cat might be a useful experimental animal for psychosomatic research in asthma.

The findings of the present experiment follow the same general patterns and principles that were found to apply in other experiments of this series. Early infantile traumata have persistent effects upon adult behavior, lasting throughout the lifetime of the animal and affecting practically every modality of behavior that is tested. These findings correspond with a principle of development discovered in experimental embryology: the earlier a trauma occurs in the development of an organism, the greater the number of structures that are affected by it.

The specific findings of this experiment have been discussed separately in some detail.

References

1. Beach, F. Animal research and psychiatric theory. *Psychosom. Med. 15*:374, 1953.
2. Benedek, T. Adaptation to reality in early infancy. *Psychoanalyt. Quart. 7*:200, 1938.
3. Bowlby, J. The nature of the child's tie to his mother. *Internat. J. Psychoanal. 29*:1, 1958.
4. French, T. M., Alexander, F., *et al. Psychogenic Factors in Bronchial Asthma.* Washington, D. C., National Research Council, 1941. (Psychosomatic Medicine Monographs. Vol. I, No. 4; Vol. II, Nos. 1 and 2.)
5. French, T. M. *The Integration of Behavior.* Vol. I. Basic Postulates. Chicago. Univ. of Chicago Press, 1952, p. 123.
6. Freud, S. Instincts and their vicissitudes (1915). *Standard Edition* Vol. 14: p. 133. London, Hogarth Press, 1957.
7. Harlow, H. Quoted in Reference No. 3, p. 17, footnote.
8. Hediger, H. *Wild Animals in Captivity.* London, Buttersworth, 1950.
9. Hediger, H. *Studies of the Psychology and Behavior of Captive Animals in Zoos and Circuses.* London, Buttersworth, 1955.
10. Hermann, I. Zum Triebleben der Primaten. *Imago 19*:113, 1933.
11. Hermann, I. Sich-Anklammern-Auf-Suche-Gehen. *Internat. Ztschr. Psychoanal. 22*:349, 1936.

12. KING, J. A. Parameters relevant to determining the effect of early experiences upon the adult behavior of animals. *Psychol. Bull. 55*:46, 1958.
13. LORENZ, K. Psychologie und Stammersgeschichte. In Heberer, G., ed.: *Die Evolution der Organismen*. Jena, Fischer, 1943, p. 105.
14. LORENZ, K. The comparative method in studying innate behavior patterns. *In Physiological Mechanisms in Animal Behavior*. Symposia of the Society for Experimental Biology, No. IV. New York, Academic Press, 1950.
15. LORENZ, K. *King Solomon's Ring*. New York, Crowell, 1952.
16. MASSERMAN, J. H. *Behavior and Neurosis*. Chicago, Univ. of Chicago Press, 1943.
17. MASSERMAN, J. H. *Principles of Dynamic Psychiatry*. Philadelphia, Saunders, 1946.
18. MENAKER, E. A note on some biologic parallels between certain innate animal behavior and moral masochism. *Psychoanalyt. Rev. 43*:31, 1956.
19. OTTENBERG, P., STEIN, M., LEWIS, J. and HAMILTON, C. Learned asthma in the guinea pig. *Psychosom. Med. 20*:395, 1958.
20. SEITZ, P. F. D. The effects of infantile experiences upon adult behavior in animal subjects: I. Effects of litter size during infancy upon adult behavior in the rat. *Am. J. Psychiat. 110*:916, 1954.
21. SEITZ, P. F. D., and MELDMAN, M. Infantile experiences and adult behavior in animal subjects: III. A method for selective alteration of maternal behavior in animal subjects. *In press.*
22. SEITZ, P. F. D. Infantile experience and adult behavior in animal subjects: IV. Relation of birth order to adult behavior in the rat. *In preparation.*
23. SEITZ, P. F. D. The maternal instinct and offspring behavior in animal subjects. In *Parental Behavior and Pathogenesis*, unpublished monograph.
24. SEITZ, P. F. D. The maternal instinct in animal subjects: I. *Psychosom. Med. 20*:215, 1958.
25. SEITZ, P. F. D. The maternal instinct in animal subjects: II and III. *In preparation.*

Blood Corticotropin and Adrenal Weight-Maintenance Factor Levels of Anxious Patients and Normal Subjects

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ANXIOUS AND NORMAL subjects differ significantly in their ability to produce and metabolize hydrocortisone, one of the two principal hormones of the adrenal cortex. Anxious subjects produce more hydrocortisone and metabolize it differently than normal subjects. The increased production of hydrocortisone by the anxious individual has been demonstrated by such criteria as an elevated plasma hydrocortisone level,[1, 2] an elevated urinary hydroxycorticoid[3] and 17-ketosteroid[4] excretion, a greater urinary hydroxycorticoid output in response to exogenous corticotropin,[5] and an increased turnover of radioactively-tagged hydrocortisone.[6] The altered metabolism of hydrocortisone in the anxious subject is reflected in the greater proportion of 17-ketosteroids[7] and lesser proportion of hydroxycorticoids[8] relative to all the urinary metabolites of hydrocortisone following an exogenous dose of hydrocortisone.

Three possibilities might account for the increased production of hydrocortisone by the anxious subject:

1. The hypercorticoidism is the result of an over-response by the adrenal cortex to the stimulus supplied by corticotropin, as occurs in the patient with adrenal hyperplasia.[9]

2. It is due to a prolongation of the action of corticotropin on the adrenal cortex, possibly due to an inhibition of the enzyme system which inactivates the pituitary hormone, described in detail by Pincus, Hopkins, and Hechter.[10]

3. It is due to an absolute increase in the circulating level of corticotropin.

The adrenal over-response hypothesis has been shown not to be true since the response of plasma hydrocortisone to exogenous corticotropin is not significantly different between anxious patients and normal controls.[5] The prolongation of corticotropin action viewpoint must also be rejected because following the termination of a corticotropin infusion, the plasma level of hydrocortisone returns to a basal value in identical fashion for both the anxious patients and the normal controls.[5]

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However, indirect evidence obtained from an analysis of dose-response curves suggested that the plasma corticotropin level of the anxious patient is already elevated prior to the administration of exogenous corticotropin since the magnitude of the response is almost unaffected by the increase in dose.[5]

On the basis of the hypercorticoidism and the indirect evidence that plasma corticotropin was elevated, we decided to determine the circulating level of corticotropin directly in anxious patients and normal subjects. In the course of choosing a suitable analytical method, it became evident that there were two corticotropins: one which registered in both the adrenal ascorbic acid depletion assay[11] and the adrenal weight-maintenance method,[12] and another, which is detected only in the adrenal weight-maintenance assay. The first substance is the conventional "ACTH," the second has recently been demonstrated in the plasma of patients with adrenal hyperplasia and acromegaly and of pregnant women by Jailer, Longson, and Christy.[13] Dasgupta and Young have called the weight-maintenance factor "precorticotropin" and have shown that it can be converted by mild acid treatment to another form capable of producing ascorbic acid depletion in the hypophysectomized rat.[14] As a result of these recent investigations, we decided to determine whether both of these forms of corticotropin were present in the blood of anxious patients in greater concentration than in the blood of normal subjects. The present paper summarizes our findings to date.

Subjects, Experimental Design, and Methods

The subjects of this study consisted of a group of 12 anxious, hospitalized patients from the various psychiatric facilities of the Medical Center and a group of 15 medical and nursing students who served as normal controls. The two groups were balanced with respect to sex, but the patients were slightly older than the controls (28.6 vs. 22.9 years). The patients represented a spectrum of diagnostic categories, but these did not influence their selection as subjects for this study. Some degree of manifest anxiety was required of each patient in order to be selected. Both the patients and the controls were in good physical health and had not received any medication for at least three days prior to testing.

On the morning of a preselected day, each patient or control subject was given a psychiatric interview from which an estimate of the degree of clinically manifest anxiety was obtained. The Taylor Manifest Anxiety Scale[15] and an adjective checklist for anxiety devised by Zuckerman[16] were then administered in order to obtain several objective estimates of anxiety for later comparison purposes. Immediately after this, one pint of blood was drawn for the determination of the 2 corticotropins and plasma hydrocortisone; and the collection of a 24-hour urine was begun for the determination of urinary hydroxycorticoids.

Clinical anxiety was estimated along a seven-point scale ranging from 0 (no manifest anxiety) to 6 (most extreme anxiety ever reported) on which the rater was able to differentiate half-units.[17] Although considerable differentiation of anxiety was possible, the anxiety scale employed was not an interval scale and subsequent statistical analyses will recognize this fact. The blood obtained from each subject was divided into 3 aliquots for the determination of plasma hydrocortisone (25 cc.), precorticotropin or adrenal weight-maintenance factor (AWMF) (210 cc.), and "ACTH" or ascorbic acid depletion factor (AADF) (235 cc.). Plasma AWMF was determined according to Jailer et al.[13] Since no absolute standards are presently available, the results are expressed as the absolute increase in mean weight of the paired adrenal glands of a group of hypophysectomized rats who received the plasma subcutaneously, over the mean weight of the paired adrenal glands of a group of hy-

pophysectomized rats who were not injected. AADF was determined on the second aliquot of blood by Munson's modification[18] of the method of Sayers, Sayers, and Woodbury[19] after the blood was processed according to Fujita's modification[20] of Sydnor and Sayers' method.[21] Ascorbic acid was determined in the adrenal glands by Mindlin and Butler's method.[22] The statistical analyses of the AADF assays along with an evaluation of the assay based on these data are described in detail in two publications.[23, 24] Plasma hydrocortisone was determined according to Nelson and Samuels,[25, 26] and urinary hydroxycorticoids were determined by a modification of Reddy's method.[27, 28] Urinary creatinine was estimated according to Folin and Wu[29] in order to check for completeness of urinary collection.

Results

Degree of Anxiety and Comparison of the Anxiety Indices

In order to test the hypothesis that the hypercorticoidism of the anxious patient is the resultant of the over-production of one or the other corticotropins, it seemed desirable to first demonstrate that the patients were more anxious and hypercorticoid than the normal subjects. In Table 1, the means and standard deviations of the anxious patients and the normal controls are given for all the variables measured in this study. A test of comparison of the two groups for each variable and its significance level are also given. The anxious patients exhibited significantly more anxiety than the controls as judged by both the clinical rating and the Manifest Anxiety Scale and adjective checklist. Not one normal subject had a clinical rating as high as the lowest value of the patient group, and only one normal subject overlapped the anxious group on the other two indices. The anxiety level of the patient group as estimated by the clinical rating ranged from 1.5 to 3.0 units; this constitutes the lower half of our potential anxiety spectrum. During the course of this study we were unable to find patients with higher anxiety levels, a finding which other investigators have previously noted.[1]

The excellent differentiation between the controls and the patients by all three anxiety indices suggested that the Manifest Anxiety Scale and adjective checklist might be correlated with the clinical anxiety rating. In order to test for relationship of these variables without making assumptions about the nature of the anxiety rat-

TABLE 1. COMPARISON OF SEVERAL VARIABLES OF ANXIOUS PATIENTS AND NORMAL SUBJECTS

Variable	*Group*	*N*	*Mean ± S. D.*	*t**	*P*
Clinical Anxiety Rating	Anxious	12	2.25± 0.39	†	<.001
	Normal	15	0.20± 0.32		
Taylor Manifest Anxiety Scale	Anxious	12	27.7 ±10.0	6.33	<.001
	Normal	15	7.3 ± 5.4		
Adjective Checklist	Anxious	12	18.3 ± 4.7	6.80	<.001
	Normal	15	7.9 ± 3.2		
Plasma Hydrocortisone (μg. %)	Anxious	11	22.5 ± 9.8	2.95	<.01
	Normal	14	12.8 ± 5.5		
Urine Hydroxycorticoids (mg./day)	Anxious	12	5.4 ± 2.2	2.51	<.02
	Normal	14	3.5 ± 1.5		
Urine Volume (cc./day)	Anxious	12	879 ± 534	0.42	N.S.
	Normal	14	950 ± 321		
Blood AADF (mU/100 cc.)	Anxious	11	0.51± 0.82	1.16	N.S.
	Normal	15	0.21± 0.27		
Plasma AWMF (△ mg.)	Anxious	11	1.72± 1.18	2.46	<.05
	Normal	13	0.79± 0.46		

*Appropriate methods where variance is heterogeneous.
†This comparison is by means of a 2 × 2 contingency table.

ing scale, we employed a single classification analysis of variance with four class intervals: 0, 0.5 and 1.0, 1.5 and 2.0, and 2.5 and 3.0 anxiety rating units. The variance ratio, F, for both comparisons (Table 2) is highly significant, indicating that the original suggestion was true. However, comparisons of the mean Manifest Anxiety score and adjective checklist score between adjacent anxiety class intervals within subject groups are not significant ($t_{1,2}$ and $t_{3,4}$). This indicates that the correlation does not hold up over the more constricted range of anxiety within the normal group and within the patient group.

Degree of Hypercorticoidism

The patients were not only more anxious than the controls, they also were more hypercorticoid as shown in Table 1. Both the plasma hydrocortisone level and urinary hydroxycorticoid excretion of the patients are significantly greater than those of the control subjects. The elevated urinary hydroxycorticoid excretion of the patients is not due to their greater urine volume since the urine volumes were not significantly different between the two groups. The mean plasma hydrocortisone levels for the patients and the controls are almost identical to the values obtained for two similar groups of subjects in a previous study, in which subject selection was made by a different psychiatrist.[1, 30] In the previous study, the range of anxiety ratings for the patient group also constituted the lower half of the potential anxiety spectrum; hence, the present investigation provided a

TABLE 2. CORRELATION OF SEVERAL VARIABLES WITH THE CLINICAL ANXIETY RATING

	Anxiety Rating Class Interval[a]				*Comparisons*[b]		
Variable	*0,* $\overline{Y}_1$	*0.5 or 1.0,* $\overline{Y}_2$	*1.5 or 2.0,* $\overline{Y}_3$	*2.5 or 3.0,* $\overline{Y}_4$	*Over all Ss, F*	*Between Anxiety Levels within Normals,* $t_{1,2}$	*Between Anxiety Levels within Patients,* $t_{3,4}$
Manifest Anxiety Scale	5.70	10.60	29.83	25.50	16.08[c]	1.16	0.97
Adjective Checklist	7.70	8.40	20.00	16.66	16.54[c]	0.33	1.48
Plasma Hydrocortisone	11.78	12.20	26.02	18.22	6.40[b]	0.10	1.76
Urine Hydroxycorticoids	3.46	3.76	6.82	4.49	4.18[a]	0.45	2.12*
Urine Volume	983	869	1063	694	0.87	0.75	1.49
Blood AADF	0.27	0.10	0.83	0.12	2.35	0.56	2.19*
Plasma AWMF	0.80	0.64	0.88	2.73	13.38[c]	0.44	5.00**

$\overline{Y}$ is the average of all values of the variable falling in the class interval.

F, the variance ratio, is given by $\frac{\text{MSq.}_{\text{(between anxiety rating intervals)}}}{\text{MSq.}_{\text{(within intervals)}}}$;

$$t_{1,2} = \frac{\overline{Y}_1 - \overline{Y}_2}{\sqrt{\text{MSq.}_{\text{within intervals}} \left(\frac{1}{N_1} + \frac{1}{N_2}\right)}},$$

$$t_{3,4} = \frac{\overline{Y}_3 - \overline{Y}_4}{\sqrt{\text{MSq.}_{\text{within intervals}} \left(\frac{1}{N_3} + \frac{1}{N_4}\right)}}$$

[a]Significant at better than the 5% level.
[b]At better than the 1% level.
[c]At better than the 0.1% level.

good corroboration of the earlier study in which the thesis was advanced that emotional arousal is associated with adrenocortical hyperreactivity.

By means of a single classification analysis of variance, we were able to demonstrate that both the plasma hydrocortisone level and urinary hydroxycorticoid excretion were significantly correlated with the clinical anxiety rating (Table 2). The correlation is not significant for either variable within the control subjects but approaches significance for plasma hydrocortisone and is significant for urinary hydroxycorticoid excretion within the patient group (taking the conventional 5 per cent level as the dividing point). In the upper half of the anxiety spectrum differentiation among mean plasma hydrocortisone levels has been previously shown to be even more significant.[30]

Corticotropin Levels of Anxious and Normal Subjects

AADF

Since the patients are both anxious and hypercorticoid relative to the controls who are minimally anxious and eucorticoid, our subjects met the criteria deemed essential for the present study. Of the 2 corticotropins which we proposed to determine, the AADF is better known. The mean levels of this substance in the blood of anxious patients and of normal controls are not significantly different although the patient level is higher (Table 1). Under the conditions of our assay, the minimum blood AADF level capable of detection at the 10 per cent significance level is 1.5 milliunits per 100 cc. of blood. Only two patients and no controls had levels above this critical value.

Even though the patients were not distinguished from the controls with respect to this variable, the blood AADF level was related to the clinical anxiety rating as shown by the analysis of variance of Table 2. No differentiation among normal subjects was obtained, but significant differentiation among the patients occurred. This is primarily attributable to the two patients having significantly elevated AADF levels. Work now in progress in collaboration with Drs. Eugene E. Levitt and Arie den Breeijen supports the conclusion that at the higher anxiety levels correlation with AADF level improves. We have been determining AADF in the blood of normal subjects under hypnosis and during an hypnotically-induced anxiety state and have obtained subjects in the latter condition with anxiety ratings of 1.5, 3.0, 3.5, and 5.0, and AADF levels of 0.1, 0.0, 2.0, and 3.3 milliunits/100 cc. of blood respectively. Although our sample is relatively small (31 cases to date), it seems that a critical anxiety region occurs below which AADF is not present in blood in detectable quantities. We have tentatively concluded that on the anxiety scale which we have employed, this region lies below the second to third scale units.

AWMF

The second corticotropic substance, precorticotropin or adrenal weight-maintenance factor (AWMF), is present in the plasma of anxious patients to a significantly greater extent than in normal subjects (Tables 1 and 3). The mean effect of AWMF, as gauged by the inhibition of adrenal atrophy in hypophysectomized rats, was twice as great for plasma from anxious patients as from normal controls (1.71 mg. difference vs. 0.76 mg.). Plasma obtained from patients with adrenal hyperplasia, pregnant women, and acromegalics produced a somewhat greater effect than plasma from the anxious patients;[13] the degree of hypercorticoidism of the first two groups is known to be considerably greater than that present in anxious patients. Plasmas from 8 of the 11 patients and only 1 of the 13 controls produced an effect on adrenal weight significantly different from that obtained in the non-injected control animals (Table 3).

The mean difference in paired adrenal weight of the hypophysectomized rats is highly correlated with the degree of clini-

TABLE 3. COMPARISON OF MEAN ADRENAL WEIGHTS OF HYPOPHYSECTOMIZED RATS RECEIVING PLASMA WITH THOSE FROM ANIMALS NOT RECEIVING PLASMA

		Injected Animals			*Non-Injected Animals*			*Difference in paired adrenal weight*[1]	
Group	*Ss*	*No. Animals*	*Mean paired*[1] *adrenal weight*	*S.D.*	*No. Animals*	*Mean paired*[1] *adrenal weight*	*S.D.*		*t*†
ANXIOUS	1	8	14.37	1.10	16	10.50	1.48	3.87	6.16*
	2	12	13.58	1.66	12	11.48	1.32	2.10	3.55*
	3	7	14.74	2.78	5	11.44	1.80	3.30	3.89*
	4	10	12.06	1.77	15	10.95	1.50	1.10	1.86*
	5	9	11.04	1.42	7	10.56	1.13	0.48	0.66
	6	11	12.11	1.64	11	10.22	1.10	1.89	3.06*
	7	6	12.30	0.95	4	9.80	0.99	2.50	2.67*
	8	11	12.47	1.05	10	10.62	1.87	1.85	2.92*
	9	7	11.00	1.11	14	9.81	1.07	1.19	1.77*
	10	7	14.03	1.24	7	13.63	1.20	0.40	0.52
	11	9	11.99	1.52	9	11.71	0.61	0.28	0.41
	AVERAGE		12.69			10.98		1.71	3.39*
NORMAL	1	9	11.51	1.51	12	10.47	0.88	1.04	1.63
	2	4	11.50	0.68	6	10.37	1.36	1.13	1.21
	3	12	12.66	1.27	13	11.75	1.87	0.91	1.57
	4	10	11.89	1.22	6	10.70	0.74	1.19	1.59
	5	9	12.23	1.14	12	10.68	1.65	1.55	2.42*
	6	9	11.16	0.71	9	10.40	1.51	0.76	1.11
	7	7	10.63	0.75	13	10.08	1.04	0.55	0.81
	8	9	12.02	1.73	12	11.15	1.96	0.87	1.36
	9	7	11.97	1.60	5	11.24	1.42	0.73	0.86
	10	8	13.14	2.05	4	12.70	0.49	0.44	0.50
	11	5	11.48	1.29	4	12.00	2.09	—0.52	—0.53
	12	10	10.84	2.22	8	10.31	1.39	0.53	0.77
	13	3	11.30	0.44	4	10.68	1.36	0.62	0.56
	AVERAGE		11.72			10.96		0.76	2.63*

[1]mg.
†Computation of these t's made use of the pooled variance (371 df) from all 48 sets of animals.
*Significant at better than the 5% level.

cal anxiety experienced by the subjects from whom the plasma was obtained (Table 2). Although differentiation among the control subjects with respect to prevention of adrenal atrophy was not obtained, among the patients a highly significant differentiation was obtained. A critical anxiety region also seems to occur for AWMF; below this region, AWMF is present in minimal or undetectable quantities. Tentatively, we consider this region to be below the second unit of our anxiety scale.

Discussion

The data analyses carried out in the course of this study have attempted to progressively evaluate the nature of the relationship between the circulating corticotropins' levels and the clinical estimate of anxiety. It was first shown that the anxious patients had higher levels of AWMF, but not AADF, than the control subjects. Without making assumptions as to the nature of the relationship, it was then shown that the levels of both corticotropins were significantly related to the level of clinical anxiety. And finally, it was shown that the correlation was more significant at the higher anxiety levels than at the lower ones.

No attempt was made during the course of the present investigation to determine the mathematical nature of the relation-

ship between the corticotropins and anxiety rating. This followed from the peculiar composition of the sample (a group of patients and a group of controls) and the relatively small size of each subsample. Furthermore, the anxiety scale is not quite an interval scale and this posed extra problems in the evaluation of the relationship. Work now in progress may solve some of these problems and help to more fully specify the relationship between hormone level and affect level.

The relationship between AWMF and AADF is also presently unclear. Dasgupta and Young[14] demonstrated that these substances were interconvertible by pH adjustment or by the addition of urea to the solution. Other chemical changes can possibly bring about this transformation, among them changes such as occur in the stressed human being. Data reported to date do not clearly establish whether these substances are simultaneously present—although in the patient with adrenal hyperplasia, AWMF but not AADF is present,[13] whereas in the patient with adrenocortical insufficiency, AWMF is absent,[13] but AADF is present in very large quantities.[31] Significantly detectable quantities of both substances were present in only two anxious patients in the present study. Work now in progress should help to clarify this point.

The failure to detect AADF or AWMF in significant quantities in patients at the low end of the anxiety scale may simply have reflected the relative crudeness of our assays. However, the sudden rapid increase in the levels of these substances when the so-called "critical anxiety" regions were exceeded suggest an alternative explanation, i.e., that the nature of the relationship between clinical rating and the circulatory level of these substances is a curvilinear one with the slope positively accelerating at the higher anxiety levels.

Summary

A group of anxious, hypercorticoid patients were shown to have a mean plasma level of AWMF (a relatively new corticotropic substance), more than twice that of a group of normal, eucorticoid subjects. The mean blood level of AADF, the conventional corticotropin, was higher in the anxious group but not significantly so. By a single classification analysis of variance, the levels of both AWMF and AADF were shown to be significantly correlated with the clinical anxiety rating. It is presently unclear whether AWMF and AADF occur simultaneously in the blood in detectable quantities. It was suggested that a critical anxiety region exists below which neither AWMF or AADF is present in the blood.

References

1. Persky, H., Grinker, R. R., Hamburg, D. A., Sabshin, M., Korchin, S. J., Basowitz, H., and Chevalier, J. A. Adrenal cortical function in anxious human subjects: Plasma level and urinary excretion of hydrocortisone. *Arch. Neur. & Psychiat. 76*:549, 1956.
2. Persky, H., Grosz, H. J., Norton, J. A., and McMurtry, M. Effect of hypnotically-induced anxiety on the plasma hydrocortisone level of normal subjects. *J. Clin. Endocrinol. 19*:700, 1959.
3. Persky, H., Korchin, S. J., Basowitz, H., Board, F. A., Sabshin, M., Hamburg, D. A., and Grinker, R. R. Effect of two psychological stresses on adrenocortical function: Studies on anxious and normal subjects, *Arch. Neurol. & Psychiat. 81*:219, 1959.
4. Howard, J. M., Olney, J. M., Frawley, J. P., Peterson, R. E., Smith, L. H., Davis, J. H., Guerra, S., and Dibrell, W. H. Studies of adrenal function in combat and wounded soldiers. *Ann. Surg. 141*:314, 1955.
5. Persky, H. Adrenal cortical function in anxious human subjects: Effect of corticotropin (ACTH) on plasma hydrocortisone and urinary hydroxycorticoid excretion. *Arch. Neurol. & Psychiat. 78*:95, 1957.
6. Persky, H. Unpublished data.
7. Elmadjian, F. Adrenocortical function of combat infantrymen in Korea. *Ciba Foundation Coll. Endocrin. 8*:627, 1955.
8. Persky, H. Adrenocortical function in anxious human subjects: The disappearance of hydrocortisone from plasma and its metabolic fate. *J. Clin. Endocrinol. 17*:760, 1957.
9. Christy, N. P., Longson, D., and Jailer, J. W. Studies in Cushing's Syndrome: I. Observations on the response of plasma 17-hydroxycorticosteroid levels to corticotropin. *Am. J. Med. 23*:910, 1957.

10. Pincus, G., Hopkins, T. F., and Hechter, O. An ACTH-inactivating factor in mammalian blood. *Arch. Biochem. & Biophys. 37*:408, 1952.
11. Sayers, M. A., and Sayers, G. A method for the assay of adrenocorticotropic hormone. *Fed. Proc. 5*:200, 1946.
12. Simpson, M. E., Evans, H. M., and Li, C. H. Bioassay of adrenocorticotropic hormone. *Endocrinology 33*:261, 1943.
13. Jailer, J. W., Longson, D., and Christy, N. P. Studies in Cushing's Syndrome: II. Adrenal weight-maintaining activity in the plasma of patients with Cushing's Syndrome. *J. Clin. Invest. 36*:1608, 1957.
14. Dasgupta, P. R., and Young, F. G. Precorticotropin. *Nature 182*:32, 1958.
15. Taylor, J. A. A personality scale of manifest anxiety. *J. Abnorm. & Social Psychol. 48*:285, 1953.
16. Zuckerman, M. Personal communication.
17. Hamburg, D. A., Sabshin, M., Board, F. A., Grinker, R. R., Korchin, S. J., Basowitz, H., Heath, H. A., and Persky, H. Classification and rating of emotional experiences: Special reference to reliability of observation. *Arch. Neur. & Psychiat. 79*:415, 1958.
18. Munson, P. L., Barry, A. G., and Koch, F. C. Private communication, *quoted in* Sayers, M. A., Sayers, G., and Woodbury, L. A. The assay of adrenocorticotrophic hormone by the adrenal ascorbic acid-depletion method. *Endocrinology 42*:379, 1948.
19. Sayers, M. A., Sayers, G., and Woodbury, L. A. The assay of adrenocorticotrophic hormone by the adrenal ascorbic acid-depletion method. *Endocrinology 42*:379, 1948.
20. Fujita, T. Determination of corticotropin (ACTH) in human blood by a modified oxycellulose method. *J. Clin. Endocrinol. 17*:512, 1957.
21. Sydnor, K. L., and Sayers, G. A technic for determination of adrenocorticotrophin in blood. *Proc. Soc. Exper. Biol. & Med. 79*:432, 1952.
22. Mindlin, R. L., and Butler, A. M. Determination of ascorbic acid in plasma: A macromethod and a micromethod. *J. Biol. Chem. 122*:673, 1938.
23. Norton, J. Linear regression for three unequally spaced treatments and a confidence interval for a linearizing transformation (in preparation).
24. Norton, J., and Persky, H. Some observations concerning the bioassay of corticotropin by the ascorbic acid-depletion method (in preparation).
25. Nelson, D. H., and Samuels, L. T. A method for the determination of 17-hydroxycorticosteroids in blood: 17-hydroxycorticosterone in the peripheral circulation. *J. Clin. Endocrinol. 12*:519, 1952.
26. Eik-Nes, K., Nelson, D. H., and Samuels, L. T. Determination of 17, 21-hydroxycorticosteroids in plasma. *J. Clin. Endocrinol. 13*:1280, 1953.
27. Brown, H., Willardson, D. G., Samuels, L. T., and Tyler, F. H. 17-Hydroxycorticosteroid metabolism in liver disease. *J. Clin. Invest. 33*:1524, 1954.
28. Reddy, W. J., Jenkins, D., and Thorn, G. W. Estimation of 17-hydroxycorticoids in urine. *Metabolism 1*:511, 1952.
29. Folin, O., and Wu, H. A system of blood analysis. *J. Biol. Chem. 38*:81, 1919.
30. Persky, H., Hamburg, D. A., Basowitz, H., Grinker, R. R., Sabshin, M., Korchin, S. J., Herz, M., Board, F. A., and Heath, H. A. Relation of emotional responses and changes in plasma hydrocortisone level after stressful interview. *Arch. Neur. & Psychiat. 79*:434, 1958.
31. Bethune, J. E., Nelson, D. H., and Thorn, G. W. Plasma adrenocorticotrophic hormone in Addison's Disease and its modification by the administration of adrenal steroids. *J. Clin. Invest. 36*:1701, 1957.

Some Issues in Research on Human Behavior and Adrenocortical Function*

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THE CENTRAL FEATURE of the interesting study by Dr. Persky *et al.* is an attempt to measure a trophic hormone of the anterior pituitary. A decade ago, adrenocortical function was assessed by measuring metabolic processes known to be influenced by the adrenal cortex. These metabolic processes were, however, also influenced by a variety of other regulatory forces, and so interpretation of results was very difficult. Then, with the publication in 1952 of the Nelson-Samuels method for biochemical measurement of hydrocortisone,[1] a more direct index of adrenocortical function became available, and much valuable information has been obtained through its use. As a next step, it would surely be logical to measure ACTH, and we may expect increasing efforts to do so over the coming few years. Such measurements bring us one step closer to the central nervous system and to behavior.

If we are interested in coordination of the total organism as it meets environmental contingencies, we would certainly benefit from reliable, precise chemical methods for measuring trophic hormones; but unfortunately there is so far no adequate chemical method for measurement of protein and polypeptide hormones, though encouraging progress has been reported in the past year. In the meantime, it seems reasonable to do as Dr. Persky has done and use the best available bioassay methods, even though there are formidable difficulties in deciding what it is that is actually being measured.

Another interesting feature of Dr. Persky's report is the difference in plasma hydrocortisone levels between anxious and nonanxious individuals. There is a remarkable consistency of findings among several laboratories on this question. Mean levels of individuals in overt distress have consistently been reported at 19–20 μg./100 cc., while those of individuals in no distress have been consistently at 12–13, using the Nelson-Samuels method. A series of studies, involving in aggregate a rather large number of individuals studied, has shown impressive convergence. I am referring here to the work of Bliss and associates at Utah,[2] Grinker and associates at Michael Reese,[3] Mason and associates at Walter Reed,[4] and Persky's present research at Indiana. In addition, the work of Fox, Thorn, and associates at Peter Bent Brigham,[5] while using somewhat different methods, is generally consistent with the findings of the other groups.

Now, if we put these studies on human

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behavior and adrenocortical function together with the work of Mason and associates on brain pathways that influence the pituitary-adrenal system,[6] we get an unusual glimpse into relations of behavior, brain mechanisms, and visceral function. Here we have careful work linking three types of investigation—three overlapping frames of reference for studying psychosomatic relations. This story might well serve as a model for psychophysiological research on other systems.

One of the most intriguing findings in these studies is the readiness with which the pituitary-adrenocortical system responds in *anticipation* of a difficult situation. In our collaborative NIMH-Walter Reed Institute studies during the past year, we have obtained further evidence of hydrocortisone elevation immediately *preceding* a moderately ambiguous situation that has some threatening elements, though surely nothing extremely stressful from either a physical or psychosocial viewpoint. As a matter of fact, we find it very difficult to avoid these anticipatory steroid rises even when considerable care is taken to make the experience familiar and nonthreatening to the subject.

From an evolutionary perspective, it is easy to imagine that organisms which were *prepared in advance* for danger situations might have had a powerful selective advantage over those which were not. But many signs of danger turn out to be false alarms; so there would probably be further selective advantage in having brain mechanisms that *shut off* emergency responses as well as brain mechanisms that *turn on* emergency responses.

It is interesting to note that the history of psychophysiological research is largely one of looking for *turning on* processes—e.g., for psychological conditions under which emergency-type physiological functions are triggered into action. In the case of the adrenal cortex, this has meant a search for psychological factors related to hydrocortisone *elevation*. But are there also other psychological conditions under which hydrocortisone levels are consistently lowered, perhaps even actively suppressed, by the central nervous system? In our current research, we are much interested in this question and have suggestive evidence that stimulates us to pursue it further. There are intriguing leads in several unpublished human studies; also, Mason has found very low levels in some monkeys in a *chronic* stress situation and has previously reported prolonged depression of hydrocortisone levels following hippocampal stimulation in the monkey.[6]

If we take seriously the concept of neural *regulation* of endocrine function, then it makes sense to look for *lowering* effects as well as *raising* effects, and to guide our search in part by an analysis of the problems that had to be met by the human species over the very long course of its evolution.

References

1. Nelson, D. H., and Samuels, L. T. A method for the determination of 17-hydroxycorticosteroids in blood: 17-Hydroxycorticosterone in the peripheral circulation. *J. Clin. Endocrinol.* *12*:519, 1952.
2. Bliss, E. L., Migeon, C. J., Branch, C. H. H., and Samuels, L. T. Reaction of the adrenal cortex to emotional stress. *Psychosom. Med. 18:* 56, 1956.
3. Board, F., Persky, H., and Hamburg, D. A. Psychological stress and endocrine functions: Blood levels of adrenocortical and thyroid hormones in acutely disturbed patients. *Psychosom. Med.* *18*:324, 1956.
   Persky, H., *et al.* Adrenal cortical function in anxious human subjects: Plasma level and urinary excretion of hydrocortisone. *A. M. A. Arch. Neurol. & Psychiat. 76*:549, 1956.
4. Price, D. B., Thaler, M., and Mason, J. W. Preoperative emotional states and adrenal cortical activity: Studies on cardiac and pulmonary surgery patients. *A. M. A. Arch. Neurol. & Psychiat. 77*:646, 1957.
5. Hill, S. R., Jr., *et al.* Studies on adrenocortical and psychological response to stress in man. *A. M. A. Arch. Int. Med. 97*:269, 1956.
6. Mason, J. W. "The Central Nervous System Regulation of ACTH Secretion." In *Reticular Formation of the Brain.* Boston, Little, 1958.

Personality Features of Patients with Primary Glaucoma

A Medico Psychosocial Exploration

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IT IS A generally held belief that the emotions play an important role in the fluctuations of intraocular pressure, and particularly in pathological states characterized by an elevation in such pressure, namely glaucoma. As Schoenberg[10] has indicated, states of emotions clearly represent one, but only one, of the several factors which may precipitate the disturbance of the mechanisms which maintain the normal intraocular pressure. Having previously reviewed the literature on the subject of emotional factors in glaucoma,[1] we shall here confine ourselves to the problem of whether glaucoma is an avenue of psychosomatic expression available to people of diverse personality make-ups, or whether there exists a specific "glaucomatous personality." In a broader context, we are interested in whether glaucomatous patients evidence psychic disturbances that differ either qualitatively or quantitatively from those seen in patients with nonglaucomatous eye disease.

Ripley and Wolff[8] have noted the frequency of personality maladjustment in glaucomatous patients and characterized this group as moody, anxious, hypochondriacal, and exhibiting frequently compulsive traits such as conscientiousness, meticulousness, and perfectionism. Miller[6] describes this group as "industrious and conscientious citizens who set high standards for themselves." Piers[7] considers the following characteristics to be fairly typical of the patient with primary glaucoma: overconscientious attitude, unusual degree of visual mindedness, a particularly vivid memory for accidents, and a family history of blindness. Further studying the problem of whether there are personality features characteristic of this group of patients, Hibbeler[3] in 1947 utilized psychological testing, an investigative tool hitherto not applied to this field of inquiry, in 27 white patients with primary glaucoma. Her findings were quite striking in that more than two-thirds of the patients showed marked deviations on one or more of the personality scales. The high percentage of markedly deviant scores is in sharp contrast with the fact that only 5 per cent of the original normative group on which the tests were

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standardized had such marked deviations. Unfortunately none of the psychosomatic investigations that have been done in the field of glaucoma have, to our knowledge, employed a satisfactory control group, and we regard this as of major importance.

The purpose of this study is two-fold:

1. To systematically study and evaluate the personality of patients with primary glaucoma, employing an adequate control group and utilizing an approach that combines medical, social, and psychiatric data.

2. To assess and compare these two groups, particularly with respect to those emotional and personality traits generally alleged to be typical of glaucomatous patients.

Material and Method

The procedure in selecting patients for the study was as follows. All were attending the ophthalmology clinics of the Grace-New Haven Community Hospital (Table 1). These clinics are attended predominantly by patients from the lower socioeconomic strata. For a period of several weeks each patient attending the special Glaucoma Clinic was asked to participate in the study and, with but one exception, all agreed to do so. The series was, therefore, a consecutive one, and presumably represents a random sampling of the patients attending this special clinic which sees the following categories of glaucoma patients: all new cases for initial evaluation and recommendation; those patients whose disease has not been under satisfactory control; all patients being considered for surgery; and others who present special problems. Routine management of uncomplicated cases is handled in the general eye clinic. Thus, our sample is limited to newly diagnosed cases of glaucoma undergoing evaluation, and chronic cases who for one reason or another are in difficulty.

The control group, selected from the general eye clinic, consisted of 16 patients with nonglaucomatous eye disease, matched as to age, sex, race, socioeconomic class, chronicity of eye disease, and degree of visual impairment.

All subjects were told that the purpose of the project was to study the role of emotional factors in eye disease. It was explained that this endeavor was frankly for research purposes and not a part of their therapy. The nature of the evaluation tools (psychiatric interview and psychological tests) was briefly and simply explained with time allowed for questions and comments. Participation in the project was completely voluntary, but only one glaucomatous patient declined and there were no drop-outs among the participants once they had begun the study. In general, patient cooperation was excellent. This was in large measure, we believe, a reflection of the confidence of these patients in their ophthalmologists, whose endorsement of the investigation was known to them. Each subject in both groups was evaluated on the basis of the following information.

TABLE 1. CHARACTERISTICS OF THE EXPERIMENTAL AND CONTROL GROUPS

	Males		*Females*		*Total No.*	*Age (yrs.)*		*Degree of visual impairment*[a]	
	White	*Negro*	*White*	*Negro*	*subjects*	*Mean*	*Range*	*Marked*	*Minimal*
Glaucomatous	3	4	8	4	19	63.1	40-80	7	12
Controls	4	1	6	5	16	56.9	40-77	5	11

[a] The following arbitrary classifications of degree of visual impairment were used. Marked visual impairment was said to exist when the best corrected vision in either eye was 20/50 or poorer, or a field loss was present to less than 15 degrees of central field regardless of visual acuity. Minimal visual impairment was said to exist when the best corrected vision in either eye was better than 20/50 and there was more than 15 degrees of central field intact.

Medical History

This information was obtained by direct questioning along with a thorough review of the patients' medical records. Particular attention was paid to ophthalmological diagnosis, duration and severity of disease, range of fluctuations of intraocular pressure, degree of visual impairment, visual fields, adequacy of control, and the presence of eye disorders and psychosomatic diseases in the patient's family.

Social History

This was obtained directly from the patient and wherever possible was supplemented by the records of various community agencies.

Psychiatric Interview

This was minimally structured in keeping with our psychoanalytic orientation. The interview was designed to further investigate the observations, both impressional and systematic, that had been made by other workers over the years.[1] Information was obtained on the emotional "climate" at the time of the initial attack, visual memory of traumatic events, home situation, number of dependents, relationship with spouse, family history of blindness and eye disease, job history and occupational adjustment, patient's own observations of relationship of specific emotions to exacerbations of symptoms, anniversary phenomena (Inman's[5] term to describe instances in which acute glaucomatous attacks occur on the anniversary of some significant event which had happened many years earlier and was long since forgotten by the patient), and other discernible personality features and characteristics.

Psychological Testing

Testing consisted of the Minnesota Multiphasic Personality Inventory and the Draw-A-Person Test and was specifically designed to replicate and extend the work of Hibbeler previously described. This report will not include the psychological testing aspect of the investigation, a detailed accounting of which will be presented in a subsequent paper.

Results

Medical Data

As shown in Table 2, over half of our glaucomatous group have narrow filtration angles. Since narrow-angle glaucoma is far less common than the wide-angle type, this group obviously cannot be considered to represent a random sampling of the glaucomatous population. As indicated previously, these patients were selected from a special glaucoma clinic designed for evaluation of new cases, and consultation for chronic cases presenting some difficulty in management or control. Thus, of the 9 glaucomatous patients who had been followed for at least 1 year, 7 were averaging intraocular pressures of 25 mm. of mercury or greater. Similarly, 14 of the 19 patients were considered to have moderate or advanced disease. Our glaucoma group is therefore weighted in the direction of more advanced or serious cases. If there are specific personality features characteristic of primary glaucoma, one might therefore reasonably expect that they would be more prominent in a group thus weighted.

The control group is listed in Table 2 according to the primary diagnosis. Thus, although all 16 subjects had a refractive error, this constituted the primary diagnosis for only 11 of them. The figures given for average known duration of disease are almost surely underestimates, as most of these patients did not seek medical help until their symptoms had become quite troublesome.

Diabetes mellitus was 2½ times more frequent among the glaucoma group (5 cases) than among the controls (2 cases). The slightly older average age of the glaucomatous subjects (63.1 years as compared with 56.9 years for the controls) cannot alone account for this finding. In the few remaining diagnostic categories in which there is a disparity in incidence of disease, the number of cases is probably too

TABLE 2. SUMMARY OF MEDICAL DATA

	Glaucoma	*Controls*
Diagnosis		
Primary glaucoma	19	—
Wide angle	9	
Narrow angle	10	
Refractive error		11
Cataracts		2
Uveitis		1
Optic neuritis		1
Macular deg.		1
Av. known duration of disease	3.2 yrs.	3.9 yrs.
Av. intraocular pressure (mm. Hg.) of pts. followed for at least 1 year	30 or > 3	—
	25-29 4	—
	20-24 2	—
Status of glaucomatous disease[a]		
Advanced	7	
Wide angle	4	
Narrow angle	3	
Moderate	7	
Wide angle	3	
Narrow angle	4	
Mild	5	
Wide angle	2	
Narrow angle	3	
Other diseases present (source of information: medical chart)		
Hypertension	5	6
Cardio-vascular disease	7	5
Diabetes	5	2
Obesity	3	4
CNS syphilis	0	1
Epilepsy	0	1
Chronic lung disease	0	3
Perip. neuritis	2	0
Hyperthyroidism	1	0
G. U. funct. dis., inc. dyspareunia and psychic impotence	3	1
Arthritis	1	0
Chronic infect. dis.	1	3
Cancer	1	0

[a] Criteria selected for classification of glaucoma according to degree of severity. *Mild:* Slight if any field loss. Enlarged blind spots only. Tension controlled on drops or surgery below 25 mm Hg. *Moderate:* Some field loss in addition to enlarged blind spot. Tension may go into 30's while on drops or surgery. *Advanced:* Field loss to less than 15 degrees of central field. Tension in 30's or more.

small to permit of any generalizations, even of an admittedly tentative character. Our results suggest that cardiovascular disease and hypertension are no more common among the glaucomatous subjects than among the controls. This is in accord with the findings of Van Alphen and Stokvis[11] with respect to the lack of correlation between ocular and arterial hypertension.

Psychiatric Interviews

Our single, strongest, over-all clinical impression was that these two groups of patients were remarkably similar to one another. Most of these elderly people were beset with chronic worries and anxieties over marital conflicts, longstanding personal health problems, unemployment with resultant financial dependence either on family or welfare agencies, death or illness of the spouse, frequently alcoholism and/or delinquency, and a pervasive sense of loneliness and depression. A few illustrative case histories will be cited.

Case 1

B. G. is a 60-year-old, married, Negro woman with chronic open-angle glaucoma and minimal visual impairment. Aside from a "slight left ventricular hypertrophy of unknown etiology" she is in good physical health. Mrs. G.'s husband was operated upon for a brain tumor in 1941 and has been cared for in a nursing home for the past 14 months. By 1951 her husband was no longer able to work and she obtained employment as a janitor for a 12-family apartment house. Because of the financial strain she moved to a less desirable apartment and later applied for welfare assistance. In 1956 she quit this job, stating that she was no longer able to work because of unremitting chest pain. Thorough medical evaluation revealed no organic basis for this symptom, and Mrs. G. was diagnosed as having a "cardiac neurosis" and given small doses of phenobarbital. Worried over her husband's illness, uncomfortable about being "a welfare case," childless, and with no living relatives, Mrs. G. has grown profoundly depressed. For the last 2½ years she has spent most of her time resting in bed and complaining of chest pain. Her glaucoma started about 6 months ago with symptoms of cloudy vision and vague ocular discomfort. Preoccupied with other concerns, she regards the glaucoma as a minor annoyance.

Case 2

R. V. is a 77-year-old, white, married, retired

toolmaker with chronic open-angle glaucoma and minimal visual impairment. His medical history includes chronic, mild arterial hypertension; prostatectomy 10 years ago; and bilateral orchiectomy 6 years ago. The indications for the latter procedure (questionable prostatic malignancy) are unknown to us, as the surgery was done at another hospital whose records were not available. Although married to the same woman for 50 years, he describes himself as chronically unhappy with his wife. He feels guilty about numerous past extramarital "affairs" and describes himself as "an angry man who can't let it out." When he feels angry he often goes to read the Bible but discovers that his vision "fogs up when I'm upset and then I can't read." Since his retirement some years ago, he has been concerned about idleness but has made no efforts to obtain any re-employment. Glaucomatous symptoms first appeared 1 year ago, and Mr. V. denies any anxiety about this as he does of his other illnesses and operations. Superficially, Mr. V. appears as a hale, hearty, moderately anxious, energetic, youthful-looking man. His cheerful façade seems to mask an underlying depression.

Case 3

D. A. is a 58-year-old, white, married man, highly successful commercial artist and the only college graduate in our series. Mr. A. has had chronic narrow-angle glaucoma with severe visual impairment for the past 14 years and has had two operative procedures. In addition, he has migraine, had a coronary thrombosis in 1949, and a severe streptococcal septicemia in April, 1934, at which time he was given the last rites of the Church and was not expected to live. His glaucoma started in 1944 on the tenth anniversary of his near-fatal illness, while he was working as an Army demolition expert in the Arctic. He had been snowblind several times prior to the onset of the disease and was under considerable nervous strain about using explosives. To this day he is startled whenever he sees bright lights or hears a loud noise. He has never been a "good patient" and uses his drops only sporadically. Marked visual loss has interfered greatly with his favorite hobbies of reading and driving, but he has succeeded in finding a few other gratifying pastimes. Appearing as an active, athletic, vigorous man, he reacts to his extreme fear of blindness by massive denial. He has observed that when he becomes angry his eyes get hard and his vision cloudy. Mr. A. cares for his 7 children, since his wife has been hospitalized at a private mental institution for the past 9 months for chronic alcoholism. Despite his excellent job, the expenses involved are growing difficult to meet and as an economy measure he attends the clinic.

Case 4

A. L. is a 48-year-old, white widower, unemployed electrician with marked visual impairment. He has a history of many years' duration of bilateral uveitis, a cataract in one eye, and a detached retina in the other. Mr. L. describes himself as always having been a nervous person, and in 1940 he was committed to a state hospital for a brief period with a diagnosis of "acute and chronic alcoholism." Since his wife's death 7 years ago from carcinoma of the thyroid he has been particularly tense. Further aggravating factors include his inability to work since 1952 owing to his near-blindness, his childlessness, and his financial dependency on his parents, with whom he lives. He describes himself as having chronic insomnia, being "always nervous and worried" and bored. He anxiously jokes that he wishes he could "get a new pair of eyes." When he gets anxious his vision becomes diminished. Mr. L. is extremely agitated and depressed and manifests a pervasive sense of inadequacy and helplessness.

Case 5

C. L. is a 52-year-old, white woman, separated from her husband, with a minor refractive error. Aside from occasional menorrhagia she has always enjoyed good health. Mrs. L.'s two marriages have ended in divorce in each case because of the husband's alcoholism. In addition, her brother is described as an alcoholic. She is a highly superstitious woman, attributing all of her difficulties to someone's having cast an "evil eye" upon her. Her 4 children are self-supporting and live at a distance. Lonely and anxious, she lives by herself in a rooming house, receiving support from the welfare department. Despite her good health and vision she has made no efforts to find gainful employment. She has been wearing glasses for the past 20 years and regards it as a minor annoyance. When she is emotionally upset her eyes itch and she experiences a foreign-body sensation. Although anxious and presenting the impression of someone with a chip on her shoulder, she is in better mental health than most of our subjects.

Some of the data elicited in the inter-

views did not lend themselves to quantification or tabulation. We shall first briefly discuss our clinical and impressional findings with respect to this category of information. With regard to employment history, many of the subjects were either retired by reason of age, or currently unemployed owing to marked visual handicaps. In general, we found more common among the glaucomatous group than among the controls, numerous instances of exceptional industry, conscientiousness, and length of employment with the same firm. Among the male glaucomatous group, reported periods of employment ranging from 17 to 37 years with a single company were not unusual. This does not of necessity imply a high degree of vocational success, and conceivably might be a manifestation of passivity or lack of initiative. Our data do not permit us to draw any conclusions as to the meaning of this finding.

The emotional climate at the time of onset of the eye disease was difficult to assess, as most of these elderly people in both groups had chronic emotional difficulties as previously discussed. It did appear, however, that exacerbations of chronic emotional and social problems around the time of onset of the disease were more frequently reported by the glaucomatous group than by the controls. The patient's attitude toward his disease seemed more related to the degree of visual impairment than to diagnosis. Thus, among patients of both groups with marked visual handicaps, mechanisms of denial, frank admissions of extreme concern, and invocations of religious help were frequently seen.

Our efforts to assess the vividness of visual memory, particularly with respect to traumatic events, by direct inquiry indicated no apparent difference between the two groups. However, direct questioning did not seem to us to be a wholly adequate way of investigating this characteristic. We questioned patients re the "anniversary phenomena" but did not find such lines of inquiry very fruitful. Only one convincing case (Case 3) of this phenomena was obtained.

Social History

Turning to Table 3, we note that half of the glaucoma group and over half of the controls are either widowed, divorced, or separated. Among both groups, drawn from the lower socioeconomic strata of the New Haven area, few have gone beyond grade school and most have completed but three to five years of formal education. The majority of the patients came from large families, which is probably typical of the sociological class to which they belong. Although the number of family members who were described as wearing glasses was quite comparable for the two groups, 6 blind relatives were reported by the glaucoma group and none by the controls. This, despite the fact that the number of subjects in each group with a marked degree of visual impairment (see Table 1) was quite comparable. Exacerbations of eye symptoms in association with emotional upsets were frequently reported by both groups. However, this association was more common among the narrow-angle glaucomatous patients (4 cases) than among those with wide angles (2 cases). Statements such as the following were common: "My eyes fog up whenever I'm angry;" "my eyes throb like a toothache when I'm upset;" "When I'm nervous my eyes itch, get watery, and blurry."

Psychological Information

Most of the subjects in both groups—16 of the 19 glaucomatous patients and 13 of the 16 controls—exhibited prominent neurotic personality traits. Depression was by far the most frequently observed symptom. Only one patient was found to be manifestly psychotic, although several others who appeared to be borderline were tabulated according to their most prominent neurotic symptom.

Comparison of the two groups with respect to the number of cases of particular psychosomatic diseases in the subject's family reveals much interesting data. Diabetes mellitus occurred three times more frequently in the families of the glaucomatous group than among the families of

TABLE 3. SUMMARY OF PSYCHIATRIC AND SOCIAL DATA

	Glaucoma	*Controls*
Total number of subjects	19	16
Marital status		
Married	9	7
Single	1	1
Divorced or separated	5	4
Widowed	4	4
Education		
Grade school	15	13
Some high school	3	3
College	1	0
Number of siblings		
None	0	2
1–3	5	4
4–7	9	6
>7	5	4
No. family members with eye disease		
Wear glasses	9	10
Blind	6	0
Wide angle	4	
Narrow angle	2	
Anniversary phenomenon	1	0
Patient relates exacerbation of symptoms to emotional upsets	6	7
Wide angle	2	
Narrow angle	4	
Prominent neurotic personality traits		
Depression	10	8
Anxiety	3	3
Phobic-hysteric	2	1
Obsessive-compulsive	1	0
Psychotic	0	1
No. cases of psychosom. disease in family (including patient)		
Asthma	4	9
Migraine	5	7
Epilepsy	3	2
Diagnosed mental illness	7	8
Hypertension	5	6
Allergies (including hay fever)	3	2
Rheumatic fever	3	0
Colitis	0	1
Peptic ulcer	1	1
Cardiospasm	0	1
Diabetes	6	2

the controls. Mental illness and hypertension were slightly more common among the control families than the glaucomatous families. Bronchial asthma was far less common among the glaucoma families than among the control families. The figures on rheumatic fever, while suggestive, probably included too few cases to permit of any meaningful impressions.

Conclusions

1. In studying the comparative incidence of certain psychosomatic diseases, our investigation indicated that diabetes mellitus occurred much more frequently among glaucomatous patients and their families than among the control group. Blindness was reported for 6 relatives of glaucoma patients, but not once among control families. Conversely, bronchial asthma was far less common among the glaucoma group. Mental illness and arterial hypertension were seen with approximately the same frequency in both groups.

These findings tend to dispute the concept that there exists a constitutional type predisposed to psychosomatic disease in general. Rather it would seem more likely that factors of organ vulnerability are of critical importance in determining the type as well as the occurrence of psychosomatic disease.

2. The importance of emotional upsets in precipitating exacerbations of eye symptoms was recognized about equally by both groups and more frequently by the narrow-angle glaucomatous patients than by those with wide angles. This finding lends support to our hypothesis that psychic factors are of importance in influencing the course, both subjective and frequently objective, of disease in general regardless of etiology.

3. Degree of visual impairment, rather than diganosis, seemed to be the important variable with respect to the patient's attitude toward his disease. Present functional capacity rather than the eventual medical prognosis predominantly influences the subjective outlook. This leads to the interesting speculation that where vision is currently good in the face of a poor ultimate prognosis, the mechanism of denial is maximally operative in protecting the ego against the anxiety associated with the threat of blindness, and all that it connotes both real and in phantasy.

4. From a sociological and psychiatric viewpoint, the glaucomatous and control groups bore a striking resemblance to one another. The few observable differences were of degree rather than of kind and were not very impressive. Large families, low educational attainment, and a history of frequent encounters with the law and various other community agencies, typified both groups and is, we believe, characteristic of the socioeconomic class from which these people were drawn.[4] Most of the people in both groups had chronic emotional, social, and physical problems along with prominent neurotic personality traits, particularly depression. Our data indicate that there is no particular personality configuration specific to glaucoma. More tenable, in our view, is the concept that vulnerability of the eye (anatomical, physiological, vasovegetative, etc.) as a potential organ for the expression of psychic conflict is crucial, and that such somatic predisposition may be possessed by people of very diverse personality make-ups.

Summary

Nineteen patients with primary glaucoma were studied from a medical, sociological, and psychiatric viewpoint in an effort to evaluate the personality features of this group. The control group consisted of 16 patients with nonglaucomatous eye disease, matched as to age, sex, race, socioeconomic class, chronicity of eye disease, and degree of visual impairment. These two groups were assessed and compared with respect to the oft-mentioned emotional and personality characteristics alleged to be typical of glaucomatous patients.

The study provided data on the comparative incidence of certain psychosomatic diseases, and, on the basis of their data, the authors seriously question the validity of the concept of a "psychosomatic constitution."

The glaucomatous and control groups were remarkably alike from a sociological and psychiatric viewpoint, and no impressive differences were noted. Emotional factors were recognized equally by both groups as being of importance in precipitating exacerbations of eye symptoms. Depression and other neurotic personality traits were common to both groups, and there appeared to be no particular personality configuration specific to glaucoma. Also discussed is the concept of organ vulnerability as a critical factor in the occurrence and type of psychosomatic disease; the importance of psychic factors in disease in general regardless of etiology; the significance of degree of visual handicap rather than prognosis in influencing the patient's outlook; and the occurrence of glaucoma in people of very diverse personality make-ups.

In a subsequent paper, the authors plan to report on the use of psychological tests in the investigation of personality features of patients with primary glaucoma.

References

1. Berger, A. S. The emotional factor in glaucoma: A review. To be published.
2. Berger, A. S., and Simel, P. J. Effect of hypnosis on intraocular pressure in normal and glaucomatous subjects. *Psychosom. Med. 20:* 321, 1958.
3. Hibbeler, H. L. Personality patterns of white adults with primary glaucoma. *Am. J. Ophthalmol. 30:*181, 1947.
4. Hollingshead, A. B., and Redlich, F. C. *Social Class and Mental Illness.* Philadelphia, Wiley, 1958.
5. Inman, W. S. *Lancet, 2:*1188, 1929; *Tr. Ophth. Soc. United Kingdom 55:*423, 1935.
6. Miller, S. J. H. Symptomatology of congestive and simple glaucoma. *Brit. M. J. 1:*456, 1952.
7. Piers, G. *Ten-Year Report, 1932-1942.* Chicago Inst. for Psychoanalysis, p. 32-33. (Cited by Alexander, F., and French, T. M., in *Studies in Psychosomatic Medicine.* New York, Ronald, 1948.
8. Ripley, H. S., and Wolff, H. G Life situations, emotions, and glaucoma. *Psychosom. Med. 12:*215, 1950.
9. Schlaegel, T. F., and Hoyt, M. *Psychosomatic Ophthalmology.* Baltimore, Williams & Wilkins, 1957.
10. Schoenberg, M. J. Remarks on psychosomatic factors in glaucomatous hypertension. *J. Clinic. Psychopath. 6:*451, 1945.
11. Van Alphen, G. W. H. M. and Stokvis, B. Psychosomatic aspects of intraocular pressure. *Netherlands M. J. 95:*31, 1951. pp. 2246-2256.

Psychosomatic Aspects of Cancer

A Review

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ALTHOUGH THE LITERATURE on the relationship between cancer and psychiatric pnenomena is relatively sparse, it contains statements that, if validated, would be of considerable importance to medicine. Some authors, for example, believe that psychological influences are a factor in the pathogenesis of neoplasms, and others believe that this disease process occurs in patients with a specific personality. The problem of cancer incidence in psychotic patients also has been the subject of several investigations.

The purpose of this article is to review the literature and evaluate the data published in the twentieth century; a survey of eighteenth and nineteenth-century points of view has recently been published by Kowal.[38] It is also the aim of the authors to analyze the methods that have been used in such studies and to suggest certain criteria for the establishment of valid data in this complex field. The present review is, therefore, divided into 4 sections that summarize and evaluate the literature in detail. A final section includes a general critique of past studies, and suggestions for specific scientific standards for future investigations.

The literature on the psychosomatic aspects of cancer may be conveniently considered under 4 headings: (1) the incidence of cancer in mental institutions; (2) the patients' emotional reactions to cancer; (3) the psychological history or personality pattern of cancer patients; and (4) the relation of psychological phenomena to rate of progression of neoplastic disease.

Incidence of Cancer in Psychotic Patients

Of obvious importance in the assessment of the possible role of psychological factors in any illness is the incidence* of that illness in the normal population compared with that in the psychotic or neurotic population—whichever is being studied. Several studies, outlined in Table 1, have been published on the incidence of cancer in the population of mental institutions, although apparently none have been made on its frequency in psychiatric patients who have not needed hospitalization.

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*Since in general the studies reviewed in this section have been based on presence of cancer *at time of death,* the terms incidence and prevalence have been used interchangeably and not in the stricter biometrical sense.

TABLE 1. DETAILED ANALYSES OF STUDIES INC

A. Studies Based on Ca orti

Psychotic Group

Author	*Place & year*	*Method*	*Total no. of deaths*	*No. cases of cancer*	*Inclusion of only tumors causing deaths*	*Inclusion of brain tumors*	*Inclusion of sarcomas*	*Percentage of deaths due to malignant growths*
Buel[8]	Irrenanstalt Burgholzi, Zurich 1873-1923	Autopsy	2000	129 total malignancies (76 revised)	−	+	+	6.45
					−	−	−	3.8
Hahnemann[31]	St. Hans Hospital, and State Hospitals for Mental Disease, Denmark 1920-27	Autopsy in about 70%	3052	172	?+	+	+	5.51 Dementia praecox 3.2 Affective psychoses 5.6 Paranoid psychoses 12.0
House Document[32] 1200, 1925, Commonwealth of Massachusetts	Massachusetts mental hospitals 1920-24	Chiefly death certificate	7162	179	?+	?	?	2.5
Josephy[35]	Chicago State Hospital, Illinois 1935-37, 1945-47	Chiefly death certificate	'35-'37 1995 '45-'47 1963 Of cases hospitalized over 6 years: '35-'37 237 '45-'47 358	49 90 11 26	+	?+	+	'35-'37 2.5 '45-'47 4.5 Of cases hospitalized over 6 years: '35-'37 4.6 '45-'47 7.3
Lind[42]	2 mental hospitals in Australia 1913-28	Autopsy	215	21	−	?−	−	9.8
Lucksch[45]	Pragerdeutschen Pathologischen Institute 1891-1940, and Landesirrenanstalt Buchnitz 1911-40	Autopsy	14106	179	−	?+	+	1.3
Moore[55]	Creedmore State Hospital, N. Y. 1934-41	Autopsy	700	87	−	+	+	12.5
Pool[59]	County Mental Hospital, Rainhill, England 1904-28	Autopsy	3357	167 (125 not present on admission)	−	+	+	4.9 (3.8)
Warren and Canavan[71]	Massachusetts hospitals for the insane 1914-1930	Autopsy	2623	114	−	−	?−	4.3

INCIDENCE OF CANCER IN PSYCHOTIC PATIENTS
rtionate Mortality Rates

	Control Group			Miscellaneous Findings
Cancer death rate per 1000 psychotic population (or similar data)	*Control group*	*Percentage of deaths due to malignant growths*	*Cancer death rate per 1000 control population (or similar data)*	*Comment*
—	Switzerland City of Zurich	7.2 8.2	—	Of 76 cases: 41 schizophrenia 1 paranoia 11 manic-depressive psychosis 10 senile psychosis 13 other
—	Danish vital statistics 1920-27	15.11	—	Author found slightly increased incidence of cancer of the tongue and of the pancreas as well as no fatal skin cancer in psychotics
—	Population of Massachusetts (death certificate)	12.2	—	—
—	General population	10-12	—	—
—	—	—	—	Author included only patients over age 40 who had been hospitalized over 15 years He found incidence of cancer below normal rate, and suggested poor hospital living conditions might account for this
—	*"Bauers Handbuch Erdbiologie"*	10-12	—	Low incidence of cancer in insane patients attributed to (1) early death (2) simple life (3) patients' diminished response to stimuli
—	—	—	—	Author stated 75% of deaths from carcinoma occurred in patients with paranoid trends; did not state total number of patients considered paranoid Comments on number of meningiomas (6 of 14 total CNS tumors)
—	General population—Board of Control Report 1922	12.4	—	52.1% (87 out of 167) were neoplasms of gastrointestinal tract
—	Autopsies from 1) large Boston general hospitals by decades of life 2) Mass. proportional cancer mortality rate 1924, by decades of life	1) 13.1 2) 10.1		Autopsies apparently performed only on cases of sudden and unexpected death Quotes Freeman's findings at Worcester State Hospital of 5.4%, using same methods in total of 2340 patients

TABLE (continued)

B. Studies Based on Cancer Rate

Author	Place & year	Method	Total no. of deaths	No. cases of cancer	Inclusion of only tumors causing deaths	Inclusion of brain tumors	Inclusion of sarcomas	Percentage of deaths due to malignant growths
Commissioners in Lunacy for England and Wales (reported by Lord & McGrath)[44]	1909	Death Certificate (percentage of autopsies not recorded)	7100	258	?+	?+	+	3.64
Copeman and Greenwood[11]	England and Wales 1910-12	Governmental reports	—	—	?+	?	?	-
Ehrentheil[17]	Veterans Administration Hospital, Bedford, Mass. 1952 through 1954	Incidence rate per annum	(5462 patient years)	44 patients (46 malignancies)	−	?+	+	
Lord & McGrath[44]	72 British mental hospitals 1920-28	Questionnaire	51513	1984	+	+	+	3.9
Opsahl[50]	17 Norwegian hospitals varying years of early 20th century	Autopsy in 69.7%	7000	244	?+	?−	+	3.5
Peller[57]	St. Elizabeth's Hospital, Washington, D. C. 1930-39	Autopsy in 82%	2665	227 total 189 cause of death	− +	?+ ?+	+ 7.1 cause of death + (8.3% of all autopsied cases) (4.3% of all nonautopsied cases)	
Rudolph and Ashby[62]	All mental institutions of England and Wales 1907-13, 1921-27	Death certificate and autopsy	—	—	?+	+	+	
Scheflen[63]	Worcester State Hospital, Massachusetts 1928-42	Autopsy in 48.8%	3640	295	+	−	+	8.1

TABLE (continued)
Rate Method

Cancer death rate per 1000 psychotic population (or similar data)	*Control group*	*Percentage of deaths due to malignant growths*	*Cancer death rate per 1000 control population (or similar data)*	*Comment*
2.98	Population of England and Wales	9.94	1.39	—
1.58	General population of England and Wales	—	1.34	—
Incidence of cancer deaths Total 46 Paranoid schizophrenic 10 All other schizophrenic 20	U. S. Public Health Monograph #29		*Calculated incidence in psychotics on basis of age & group size* Total 33.6 Paranoid schizophrenic 7.4 All other schizophrenic 15	Author found no significant variation of incidence of cancer among various groups of schizophrenics
3.1	Population of England and Wales	13.5	1.8	Figures suggest larger incidence of cancer of pancreas in institutions
Age Age Age *40-50 50-60 60-70* Insane hospitals 1.24 3.30 6.39 Schizophrenics 1.15 3.17 6.74 Other patients 1.50 3.68 5.77	Norwegian vital statistics, 1929	Men 11.40 Women 12.57	Age 40-50 1.00 Age 50-60 2.40 Age 60-70 5.20	45.8% of cancers were cancers of stomach 6.7% of cancers were cancers of pancreas
Incidence of cancer deaths 125 Caucasian deaths 64 Negro deaths	NYC cancer rates by age, 1935	—	*Predicted from control groups:* 150.2 (±12.2) Caucasian deaths 59.8 (±7.7) Negro deaths	Lower rate for insane patients was attributed to fact that this group has a higher percentage of Southerners who, author believes, have fewer malignancies of internal organs
Weighted death rates: Males .588 1907-13 .521 1921-27 Females .772 1907-13 .612 1921-27	General population of England and Wales		*Weighted death rates:* Males: .428 1907-13 .458 1921-27 Females: .535 1907-13 .512 1921-27	Death rates varied for different years, but in general, death rate, corrected for age groups, showed greater incidence (over 2 S. E.) of cancer in mental hospitals compared with control group
Exogenous psychoses: 11.2 Endogenous psychoses: 4.4 Paranoid schizophrenia: 9.9 Paranoid conditions: 10.1	General population of Massachusetts (corrected for low percentage of autopsies)	13.0	*Predicted from control group:* Exogenous psychoses 7.6 Endogenous psychoses 3.8 Paranoid schizophrenia 3.5 Paranoid states 6.2	Author found higher incidence of cancer in patients with senile and arteriosclerotic psychoses than in similar age group in normals There was a suggestively high incidence of cancer in paranoid patients, and also a high incidence of cancer of the pancreas in schizophrenics

TABLE 1 (Continued)

C. Miscellaneous

Author	Place & year	Method	Total no. of deaths	No. cases of cancer	Inclusion of only tumors causing death	Inclusion of brain tumors	Inclusion of sarcomas
Chevens[10]	Parkside Mental Hospital, England 1910-31	Autopsy in 80-90%	768 (excluding senile dementia, GPI, postpartum, and confusional psychosis, but including idiocy, imbecility, etc.)	39	+	?+	+
Freeman[22]	St. Elizabeth's Hospital, Washington, D. C. c.1917-27	Autopsy	About 1100		−	?+	+
			Schizoid 559	24			
			Paranoid 302	41			
			Cycloid 134	15			
			Epileptoid 101	1			
				81			
Pollack[58]	Taunton State Hospital, Massachusetts	Autopsy	200	16	− +	?− ?−	?− ?−
White[74]	U. S. mental hospitals—1922	U. S. Census Reports 1923	25436	....			

Any attempt to ascertain the true prevalence of cancer in psychotic patients is necessarily difficult. Ideally, 2 parallel groups —psychotic patients without organic brain disease and a control population—should be compared on the basis of both sex and age. The method of determining cause of death, or presence of disease at death, should be identical in all cases; the best, of course, is autopsy. Factors such as diet, occupation, family history, economic condition, and exposure to noxious agents, may have played a role in the genesis of the disease; hence these should be comparable in the 2 groups. The number of cases studied should of course be sufficiently large to permit adequate statistical comparison. In studies of this type, other problems too occur—such as whether patients with brain tumors should be included. The nature of such difficulties and how they have been handled by various authors is presented in Table 1.

As pointed out by Scheflen,[63] there have been 2 basic kinds of studies—one type based on proportionate mortality rates and the other on cancer death rates. For the first kind of study, a percentage figure is obtained by dividing deaths due to cancer by total deaths. (Proportionate cancer mortality rate $= \frac{\text{number of deaths due to cancer}}{\text{total deaths from all causes}}$). For the second type of survey, the number of deaths due to cancer is divided by the total population in question. (Cancer death rate $= \frac{\text{deaths due to cancer}}{\text{total population}}$). In both types of studies, comparison has been made between hospitalized psychotic patients and the normal population.

It will be readily noted that any type of study employing proportionate mortality rates suffers from an inherent fallacy unless the overall death rate in the subject and control groups is the same. For example, the *percentage* of total deaths in young adults, due to cancer, falls during an epi-

Percentage of deaths due to malignant growths	Cancer death rate per 1000 psychotic population (or similar data)	Comment
5.1	—	Average age at death / No cases / No cases of cancer / % Deaths due to cancer Schizophrenia 41 / 121 / 3 / 2.5 Paranoid state 66 / 101 / 15 / 15 Manic-depressive psychosis 57 / 97 / 7 / 7 Melancholia 67 / 155 / 9 / 6 474 / 34 (Author commented on more frequent deaths from malignant disease in paranoids and manics.)
4.3 13.6 11.2 1.0	—	Patients divided by "dominant trend in personality reaction" regardless of presence or absence of organic disease. Some patients included in more than one group. Paranoids said to be susceptible to carcinoma, chronic streptococcal infections, and circulatory disorders
8% Total 5.5% cause of death	—	Author concluded patients with paranoid trends tend to have endocrine hyperplasia and excessive tumor formation (See text.)
—	*Age at death:* Paranoid 61.4 Manic-depressive 50.8 Schizophrenic 46.8 Epileptic 42.9	Author commented on Freeman's[22] figures to state that patients with compensatory psychosis—paranoids and cycloids—have compensatory somatization, e.g., cancer. (Note, however, that psychotic groups having longest life span also have higher incidence of malignancy. See Freeman above)

demic of poliomyelitis since the overall death rate rises, but this does not demonstrate any relationship between the 2 diseases.

Such a consideration is of major importance in surveys of the *proportionate cancer mortality rate* in psychotic patients. During the decades in which most of these studies were undertaken, the total death rate of psychotic patients was much higher than that of the normal population; the chief reason for this seems to be the increased incidence of syphilis and tuberculosis in psychotic patients. Hence, all such studies show a lower percentage of deaths due to cancer in the psychotic population than in the control population.

It is surprising, therefore, to observe how many such surveys have been made. The results of these reports are summarized in Table 2, and further details are given in Table 1A. The reader is cautioned again that such studies are of no significance whatever, but they are included both for the sake of completeness and as a demonstration of the amount of honest but useless effort that has been expended in this field because of inadequate forethought.

Analyses employing the *cancer death rate method* avoid this pitfall. In such studies, the number of cancer deaths in a psychotic population of a given size and structure is compared with a control group, presumably also of the same size and structure. Several authors have reported such statistics. For such studies, summarized in detail in Table 1B, minor variations of method have been used by the different investigators. For purposes of ready comparison, however, Table 3 has been constructed in which are listed the ratios of the cancer incidence in the psychotic population to that in the control population; a value of over 1 means that the incidence of cancer in the psychotic population is greater than that in the control population —and a value of under 1 indicates the reverse.

It will be noted that most studies of this type indicate a slightly higher prevalence of cancer in psychotic patients. Such results must be interpreted with caution, however, since as may be seen from Table 1B, in no studies have the control and psychotic groups been strictly comparable. Even the large and careful study of Rudolph and Ashby[62] suffers from the fact that autopsies were performed in a much larger percentage of the psychotic group than of the control population.

Two other problems that have been considered are the possibility that psychotic patients may have a greater incidence of a certain type of cancer, and the possibility that different types of psychotic patients develop different types of organic disease, including cancer. Evidence for such viewpoints is meager and of poor quality. Such evidence is summarized in Table 1C (except when the data are set forth earlier in Table 1A).

Various series have shown a high incidence of cancers of the stomach,[56] gastrointestinal tract,[59] or pancreas.[44, 63] However, these observations are not consistently confirmed, and the rather vague symptoms that characterize these conditions occasionally lead to an erroneous diagnosis of a psychiatric disorder.

Several authors claim to see a correlation between paranoid symptoms and an increased incidence of malignant growths. All these studies, however, have serious flaws, and can be regarded as chiefly speculative. In a study of over 1000 autopsies performed on insame patients whose disorders had been classified psychiatrically as of 4 main types (schizoid, paranoid, cycloid and epileptoid), regardless of whether the psychosis was organic or functional, Freeman[22] found that only 4.0 per cent (24 of 559) of schizoid patients had cancer as compared with 13.6 per cent (41 of 302) of paranoid patients. In a series of 295 psychotic patients (with 144 autopsies) whose death was due to cancer, Scheflen[63] noted that the incidence of death due to cancer was about twice as high in paranoid types as in other "endogenous" (functional) psychoses. He found no evidence of decreased incidence of cancer in hebephrenic and catatonic schizophrenics, but did observe that the disease was rather less frequent in patients with affective psychoses than in a control group. It is unfortunate that the total numbers of deaths in each psychiatric category was not recorded in this series, since it appears that most deaths occurred in patients with organic psychoses; and the data on patients with functional psychoses

TABLE 2. CANCER PROPORTIONATE MORTALITY RATES
(Percentage of Total Deaths Due to Cancer. See text)

Author	*Psychotic Group*	*Control Group*
Büel[3]	3.8% or 6.45	7.2 or 8.2
Hahnemann[31]	5.51	15.11
House Document 1200, Mass.[32]	2.5	12.2
Josephy[35]	3.9	10-12
Lind[42]	9.8	"greater"
Lucksch[45]	1.3	10-12
Moore[53]	12.5	———
Pool[59]	3.8 or 4.9	12.4
Warren & Canavan[71]	4.3	10.1 or 13.1
(Studies that also employed cancer death rate method.) (See Table 1.)		
Commissioners in Lunacy 1909[44]	3.64	9.94
Lord & McGrath[44]	3.9	13.5
Opsahl[56]	3.5	11.5
Scheflen[63]	8.1	13.0

TABLE 3. RATIOS OF CANCER INCIDENCE IN PSYCHOTIC PATIENTS TO CANCER INCIDENCE IN CONTROL POPULATION
(Studies Based on Cancer Death Rate Method. See Text)

Commissioners in Lunacy[44]	2.98/1.39 = 2.14
Copeman & Greenwood[11]	1.58/1.34 = 1.18
Ehrentheil[17]	46/33.6 = 1.37
Lord & McGrath[44]	3.1/1.8 = 1.72
Opsahl (Age 60-70)[56]	6.39/5.20 = 1.23
Peller (White patients)[57]	125/150.2 = .83
Rudolph & Ashby (males 1907-13)[62]	.588/.428 = 1.37
Scheflen ("Endogenous" psychoses)[63]	4.4/3.8 = 1.16

are so scant as to be of no statistical significance.

Chevens[10] found the incidence of cancer to be higher in paranoid (15 in 101) than in melancholic patients (9 in 155), although the average age at death was approximately the same. Moore[55] stated that paranoid trends had been observed in 75 per cent of 700 psychotic patients in whom autopsy revealed cancer. However, he did not record what percentage of all patients, seen at autopsy, had exhibited these trends. Pollack[58] believed that paranoid patients had a high incidence both of cancer and of hypertrophic changes in endocrine glands. However, he reported a total of only 16 neoplasms in a group of 200 autopsies—and his statistical and investigative methods invite question. It is perhaps of interest that in Büel's[8] series only one of 76 patients with cancer was classified as paranoid.

The U. S. census figures for the year 1922 (quoted by White [74]) suggest that the increased incidence of cancer in paranoid patients, if indeed it exists, may be due to the increased age at which these patients die—i.e., that more of them reach the so-called cancer age group. Ehrentheil,[17] who in a careful recent study found a slightly increased incidence of cancer in psychotic patients, noted no difference in cancer incidence among various groups of schizophrenic patients, including the paranoid type.

In summary, many studies using the proportional mortality rate method, basically invalid, have purported to show a lower incidence of cancer in psychotics than in the general population. Surveys employing the cancer death rate method, basically valid, appear to show a slightly higher incidence of cancer in psychotics, but it seems not unlikely that such results arise from the use of improper control groups, or inadequate statistical method, and have no biological significance. Evidence for the increased incidence of specific types of cancer in psychotics, or for the possible increased incidence of cancer in paranoid patients, is confusing and inconclusive.

The Emotional Reaction of Patients with Established Cancer

The emotional stress to an individual who learns that he has cancer is inevitably great. The meaning of the illness to the patient, and the psychological means with which he meets this emergency, have been the subject of several investigations. Such studies have pointed out the disruptions of normal patterns of activity, the difficulty of readjustment, and the use of certain defense mechanisms often classified as neurotic, though these are common to all individuals when facing crises.

It should be emphasized that in the surveys reviewed in this section the authors have regarded cancer as a threat to the psyche similar to any other major threat and consequently met with psychological defenses. In general, they have implied no relation between the development of cancer and personality patterns, but have studied the reaction to cancer as an emotional trauma. For the most part, they have interviewed a number of cancer patients and have summarized their conclusions without using more sophisticated techniques.

Two major research projects, one carried out at the Massachusetts General Hospital[1, 2, 19, 52, 64] and the other at Memorial Hospital, New York,[5, 67] are of this type. The most striking observation in both these studies was that most patients blamed either themselves or other persons for their disease. This finding was not confirmed, however, by Greene *et al.*,[29] who studied women with reticuloendothelial neoplasms. These workers noted shame (such as the feeling of "being a sissy"), but reported few reactions that expressed guilt.

In the study made at the Massachusetts General Hospital, 60 patients with varying types of cancer were followed in interviews, 11 being seen by a psychiatrist and the rest by a social worker. Thirty-one of these patients implied directly or indirectly that they believed they themselves had caused or worsened their disease; another 25 thought that the actions of other per-

sons had contributed to the development or unfavorable course of the disease. It should be noted, however, that in the self-recriminative group the reasons given ranged from such factors as venereal disease to self-blame for having ignored early symptoms. In the other group the presumed reasons included heredity, poor medical care, and transmission by contact. Certainly some of these ascriptions of responsibility are not properly to be considered neurotic, whereas others are suggestive of emotional disorder—at least in the present state of knowledge of the pathogenesis of neoplasms.

The group at Memorial Hospital studied 100 patients who had undergone gastrectomies, abdominoperineal resections, and radical mastectomies, chiefly performed for cancer. In a series of interviews these workers found that 47 patients spontaneously expressed beliefs about the cause of their illness; 20 patients, in fact, expressed more than one belief. Eighteen of the ideas expressed were classified as self-condemnatory; 26 showed projection of blame onto other persons, and 24 revealed projection onto more vaguely defined agencies such as God, fate, and heredity.

Depression in the cancer patient was prominent in both series. The Massachusetts General Hospital group found it to be a consistent phenomenon, and the Memorial Hospital group noted clinical symptoms of depression in 31 of 46 patients who had undergone colostomy for cancer of the bowel. Both groups also reported delay in seeking treatment after onset of symptoms; 80 per cent of the patients in the Massachusetts General Hospital study demonstrated this phenomenon.

Other types of reactions have also been observed, as well as certain defense mechanisms, but no attempt has been made to estimate their frequency. The Massachusetts General Hospital workers noted such responses as anxiety, increased dependency, paranoid reactions, suicidal thoughts, inferiority attitudes, feelings of rejection, aggression, withdrawal, and isolation. They also observed such defenses as dissociation, identification with the doctor or with another patient, regression, suppression, avoidance, denial, and occasionally sublimation. The comment was made that these reactions are identical with those observed in psychoneurosis. Kline and Sobin[36] stated in a discursive article that the main types of reactions noted in cancer patients are denial, flight, over-reaction with severe depression, and obsessive preoccupation with their disease. In Gitelson's study[27] of the role of anxiety in somatic disease, his patients' responses to this anxiety have been classified as excessive regression, repression with secondary complicating symptoms, and denial with "flight into health." He cited 2 cancer patients in both the first and third categories.

Several observers have emphasized the value of psychiatric management of the cancer patient. Both the Massachusetts General Hospital and the Memorial Hospital reports stress the importance of a positive relationship between the patient and the doctor or hospital; the former group found that patients who were consistently treated by one physician tended to have a smoother psychological course. Renneker and Cutler,[60] who studied cancer of the breast in 50 women, stated that the 2 chief psychological problems of these patients concerned breast mutilation and cancerous invasion; they also commented on the necessity of understanding the meaning of sex and of motherhood to the patient in which the breast had a crucial role. One observer[9] reported favorably on the use of hypnotism in alleviating the symptoms of the cancer patient and cited successes claimed by earlier workers who used the same or similar methods.

The problem of whether to reveal the diagnosis to the patient has been discussed by several observers.[13, 19, 26, 36, 47, 48, 64] The consensus seems to be that many patients do better if informed of the nature of their disease, although this cannot be stated as a strict rule. Many authors consider it preferable to wait until the patient asks

about his diagnosis, at which time the physician should suit his procedure to the needs and character of the individual patient.

The problem of long-term adjustment of patients who have had operations for cancer has been discussed in 2 articles. The Memorial Hospital group[67] made a follow-up study of 57 patients with colostomy following abdominoperineal resection for cancer. All the subjects were interviewed 5 years after operation and only a few showed evidence of recurrence. Weakness after operation was noted in 41 of the 47 patients with whom the subject was discussed, and this tended to continue as a prominent symptom. Adjustment in sexual, occupational, and social spheres was markedly impaired. For example, only 1 married woman of 11 and 7 of 26 men had approximately the same sexual adjustment as before surgery, although of course, impotence, secondary to interruption of nervous pathways, contributed to this difficulty in the men. It was noted that where family relations had been good before surgery they tended to remain so, but where they had been poor they tended to become worse. Only 3 of a total of 56 persons reported no restriction of their social activities, and these 3 had been somewhat reclusive before surgery.[1] Decker,[14] after follow-up interviews with 100 patients who had undergone colostomy for cancer, concluded that postoperative depression tended gradually to diminish and that patients usually became reconciled to their infirmity. He also observed that married patients seemed to fare better than single ones.

Of incidental interest are 2 reports that deal with a different but related problem —cancerphobia and cancer presenting with predominantly psychiatric symptoms. Trawick,[69] who studied 2 patients with the former problem, found their "whole focus of . . . hates and aggressions focused on malignancy." Grinker and Robbins[30] cite 2 examples of the latter problem. In both these cases the psychiatric picture was not strictly typical of emotional disorder yet suggested organic illness.

The Personality Patterns of Cancer Patients

Various authors have speculated upon the possibility that emotional traumas, sustained or acute, may cause cancer. Others have claimed that this disorder occurs predominantly in patients with certain emotional or physical characteristics. At the outset, it should be noted that all these investigations are open to serious methodological criticism. Many are simply reports of subjective impressions and cannot be considered more than hunches or opinions. Other studies, reported at the end of this section, are more systematic in approach, though somewhat inadequate in many respects. Unfortunately, much of the early and more anecdotal "evidence" reported has been accepted by later authors as more or less established fact.

As noted by Kowal,[38] many eighteenth- and nineteenth-century authors believed that such emotions as grief, disappointment, despair, and hopelessness, were inciting causes of malignant growth, and several more recent authors have concurred in this opinion. Gibson[25] cited various earlier writers who emphasized the preponderance of "melancholic" or "lymphatic" temperaments in patients with neoplasms. Lomer[13] believed that poor food intake, resulting from emotional upset, could prepare the ground for the growth of cancer. He described 2 such cases but stated that he had seen many others. Freund believed that under the influence of a depression, long-standing symptoms could become worse, and a malignant growth could develop. He cited 7 cases.[23] In contradistinction to this point of view, however, is the allegation of Williams:[75] "Some authors attach great importance to grief, anxiety, and mental distress, as causes of cancer; and they have adduced statistics in support of their belief. With regard to this, I can only say that the majority of cancer patients, whose life-history I have investigated, appeared to

me to have been less exposed to depressing influences of this kind than most women of corresponding age in the general population." This statement, of course, has as little documentation as those that express the contrary view.

Greene[28] described 20 male patients with various lymphomas and leukemias who were interviewed from 1 to 4 times. He found that in all cases the development and recognition of the disease process occurred while the patient was adjusting to loss of a support. Although in several cases this support consisted of a near relative, in one case change of school and loss of a chum were regarded as possible precipitating factors; and in another case the condition was believed to have developed after an operation for a herniated intervertebral disc. In a second report, dealing with 32 women with the same group of diseases, Greene *et al.*[29] obtained similar findings: 30 patients had suffered one or more losses less than 4 years before the onset of the disease and in many cases within the preceding year. Losses were defined in 3 main categories: persons, menopause, and home and work. These patients were further divided into 4 main groups—"mothering," "manly," "clinging," and "isolated," but all were believed to have a "basic unresolved attachment to the mother." Some evidence was considered to suggest that "mothering" and "clinging" patients survived longer after the disease developed and that exacerbations of disease occurred at times of emotional stress. The authors concluded that "one of the multiple conditions determining development of lymphoma and leukemia in adults may be separation from a key object or goal with ensuing depression."

Miller and Jones[53] concluded, apparently on the basis of one or more "psychiatric interviews" with 6 patients with myelogenous leukemia, that 4 of the 6 showed "anxiety, depression, and chronic worry" and the remaining 2 had led frustrating and wretched lives. In 3 patients with lymphatic leukemia, however, only 1 showed definite emotional difficulties. These authors reasoned that the production of leukemia by physical agents, such as benzol or x-ray, probably occurs through hormonal changes, and that emotional disorder, also often accompanied by hormonal changes, might produce blood dyscrasias in a similar fashion. Such a chain of reasoning is less than rigorous.

Certain authors have ascribed to emotional factors alleged varying cancer incidence in different ethnic groups or in different periods of time. Levin,[40] on the basis of correspondence with Indian reservation doctors, reported a low cancer incidence in the American Indian and attributed this to diminished nervous and mental irritation. Meyer[51] thought that such a restful life prevented "vagotonia," a state that he considered important in the pathogenesis of cancer. Moinson and Stéphanopoli[54] correlated the cancer death rate in Paris with the varying tides of national affairs. It rose, for example, at the time of the Dreyfus affair and fell with the arrival of American troops in World War I. These authors believed this phenomenon was due to the effect of neurovegetative factors on the endocrine or chemical milieu. This study was rather quickly countered by an article[46] pointing out that the death rate in Lyon did not follow this pattern, and that, even if there were a relationship between cancer and national calamities, the peak incidence of death should be one year after such events, since death from cancer occurs about one year after onset of the disease. Another French writer,[21] without validating evidence, stated the belief that psychological traumas might be a necessary preparatory or aggravating factor, but by no means the basic cause, in the genesis of malignant neoplasm.

Together with the concept that cancer may occur following psychological traumata, we also find the hypothesis that cancer develops in certain personality types. Elida Evans[18] combined these views; in the course of work with neurotic patients, of whom about 100 had cancer, she found

that these patients were extraverts who needed an objective attachment; with loss of the objective attachment through death or separation, the patient lost hope and developed cancer.

Butler,[9] who apparently hypnotized 12 cancer patients, concluded from "intuitive knowledge gained by intimate association" that these patients either were inhibited persons with repressed anger, hate and jealousy, or were "good" people, stoical yet laden with self-pity. A preliminary report from the University of Texas[70] on 15 men with cancer of the prostate stated that these patients were tractable, eager to please, and in general remarkably unaggressive.

Immermann,[33] after studying 13 cases, suggested that patients with epitheliomas tended to become depressed whereas patients with internal cancers showed no evidence of abnormal affect; he speculated upon an "as yet inapparent relationship" between psychotic depressions and epitheliomas. It is interesting that this author considered cancer of the breast "internal" whereas a later author,[20] also trying to differentiate varying psychologic problems on the basis of locus of neoplasm, considered it "external."

The possibility of a relationship among body types, psychological characteristics, and cancer, has interested at least 3 authors. Without presenting data of any kind, Dunbar[15] stated that she and others had found that males with hormonal balance overweighted on the female side, and females with excessive male hormones, both tend to develop cancer. Lewis,[41] to whom was attributed[74] the statement that "cancer is paranoia at the cell level," stated that "regressive" (hebephrenic and catatonic) schizophrenic types tend to develop tissue changes of atrophy and hypoplasia, whereas paranoid schizophrenics and patients with affective disorders tend to develop cancer or cardiovascular diseases; statistical support for this statement, as pointed out in the first section, is conflicting.

Sheldon,[65] in discussing psychosis, has stated that manic-depressive patients combine endo- and mesomorphy, paranoids combine meso- and ectomorphy, and hebephrenics combine endo- and ectomorphy. Some justification for this view was found in a study[37] in which he somatotyped from photographs about 1000 psychotic and neurotic patients without prior knowledge of diagnosis. Fairly good correlation was found to exist between the paranoid type of schizophrenia and mesomorphy, and also between the hebephrenic type and ectomorphy. There were, however, numerous exceptions to these generalizations. In carrying his studies into the field of cancer, he examined 200 women, of whom 50 per cent had cancer of the uterus and 50 per cent had cancer of the breast. He found that these patients were predominantly endomorphic mesomorphs and "almost bovine" in psychological characteristics, but he admitted that the population from which the sample was drawn also appeared to be predominantly of this sort and that a similar distribution of body type appeared in patients with peptic ulcer. This consideration did not deter him, however, from stating that patients with cancer tend to be extroverted, open, objective, and cerebropenic. He wondered about "cellular exuberance" in these patients who "present a kind of full-bodied morphological exuberance." He said further, without apparent substantiation, that there is a marked antithesis between cancer and hebephrenic or asthenic characteristics. It will be noted that if these conclusions were correct, the data presented in the first section of the present review should have shown a high incidence of cancer in the manic-depressive patients and a low incidence in hebephrenics. No such trend was indicated.

Bacon, Renneker, and Cutler,[4] studying patients with cancer of the breast, subjected 40 case histories to a "dynamic evaluation popularized by Alexander." Their report consists primarily in the presentation of 5 of these cases that presumably illustrate the major behavioral characteristics of the 40 patients studied. These characteristics are: (1) a masochistic-

character structure, (2) inhibited sexuality, (3) inhibited motherhood, (4) inability to discharge or deal appropriately with anger, (5) aggressiveness or hostility and unresolved hostile conflicts with the mother, and (6) delay in securing treatment. The authors suggest that these data might support the notion that "emotional forces at times can provide a catalyst for the cancer reaction."

It will be noted that most of the investigations summarized so far in this section have used relatively unsophisticated techniques in their attempt to correlate psychological trauma or personality types with the development of cancer. The following studies attempt a more systematic approach to these questions, although the inadequacies of controls and spurious statistical treatment render most of the data questionable.

Stephenson and Grace[66] interviewed 100 patients with cancer of the cervix and compared them with a control group of 100 women with cancer of "other sites." Their interview method emphasized such factors as personality functions as well as menstrual, sexual, and marital history. Each of the points obtained from the interviews was considered a separate variable and was compared for both groups. Statistical tests of significance were then applied to over 25 items. Since the only items recorded are those with significance at the 5 per cent level of confidence, or better, it is not known how many other differences were also calculated. In view of the low incidence of cancer of the cervix observed in Jewish women and its high incidence in Negro women, the groups were further broken down so that at least 25 more significance tests were applied only to the non-Jewish white subjects (74 with cancer of the cervix and 71 controls). Only 5 items were statistically significant at better than the 1 per cent level: the patients with cancer of the cervix showed (1) a dislike of sexual intercourse, (2) a failure to achieve orgastic satisfaction in intercourse, (3) a high incidence of divorce, (4) a history of leukorrhea and (5) a tendency to marry men who drank to excess. This paper does not make clear how many original differences were calculated, and certainly it is not surprising that out of at least 25 tests of significance, 5 significant differences were obtained, inasmuch as the criterion for significance was a critical ratio of only 3.

Several studies have investigated possible relationships between personality patterns and cancer through the use of psychological tests such as the Rorschach. Most of these studies also were primarily concerned with patients who had cancer of the breast or cervix, or both.

Tarlau and Smalheiser[68] reported on 22 female patients of whom 11 had cancer of the breast and 11 cancer of the cervix. These groups were then compared on the basis of Rorschach and Draw-A-Person tests and interview protocols. Although no control group was specifically selected for comparison, the authors obtained Rorschach Test scores for a group of normal *male* subjects between the ages of 18 and 33 (obtained by Brussel and Hitch at Fort Dix), and compared these scores with those of both groups of female cancer patients. According to the interview data, both types of cancer patients showed a disturbance of sexual function as reflected in such manifestations as "negative feelings toward heterosexual relations," whereas the patients with cancer of the cervix seemed on the whole to have married earlier and to have had more marital discord than those with cancer of the breast. The patients with breast cancer adapted to their sexual maladjustment primarily through denial of their sexuality, whereas those with cancer of the cervix accepted their sexuality more overtly and had a more active early sex life. The Rorschach data, according to these authors, supported the interview findings, since both female groups were less productive, perceived more men than women, and gave fewer human-movement responses than did the "control" group. In particular, the breast-cancer group gave even fewer human-movement responses

than did the cervix group. These findings were interpreted as follows: fewer responses suggested greater emotional impoverishment than normals; the tendency of both female groups to see more men than women indicated a rejection of the female role; and the fact that the breast-cancer patients gave fewer human-movement responses indicated that greater repressive forces were operating upon them than upon the patients with cancer of the cervix. The observation that the latter group gave more color-dominated responses suggested to the authors that these women were more labile and excitable than those with breast cancer. In the Figure-Drawing Test the breast-cancer patients produced more infantile figures, many of them nude, whereas the cervix-cancer patients drew figures of a higher quality, and usually clothed.

According to the authors, all these data suggested that both cancer groups had problems with mother dominance, with the feminine role, and with attitudes toward sexuality, and that these problems were less overt in the breast-cancer group than in those with cancer of the cervix. The authors argued further that these differences in personality were probably more important as factors in the pathogenesis of cancer than as reactions to the disease.

It seems important to note, however, that the numbers in each group were small, that no comparable control group was tested, and that no statistical tests were applied to the differences in Rorschach scores. Furthermore, since the cancer groups differed from the "control" group in the total number of given responses, it follows that percentage scores of the other Rorschach indices would be more significant than the absolute numbers that were reported.

Wheeler and Caldwell[73] also investigated the personality patterns in patients with cancer of the breast and cervix, and attempted to control some of the variables that were inadequately controlled by Tarlau and Smalheiser. The group tested consisted of 60 women, of whom 20 had cancer of the breast, 20 had cancer of the cervix, and 20 comprised a control group. The authors administered the Kent EGY Intelligence Scale, the Rorschach Test, the Draw-A-Person Test, a Family Preference Scale, a Directed Interview, and the Rosenzweig Picture-Frustration Study, of which only the Rorschach Test and the Interview showed differences among the groups. When a control group was used that had been "matched in important variables with the cancer groups," the Rorschach Test differences in productivity reported by Tarlau and Smalheiser[68] were not confirmed. It was found, however, that the breast-cancer group was more similar to the control group than was the cervix-cancer group, except that the breast-cancer patients gave the smallest number of human-movement responses. On the other hand, the cervix-cancer group gave the greatest number both of color-dominated responses and of sex and anatomy responses. On the basis of these Rorschach Test findings and the interview data, these authors concluded that the cervix-cancer patients were more labile, showed greater preoccupation with sex and body, and came from more disturbed backgrounds than either the breast-cancer or control groups. The breast-cancer patients seemed to have less "inner drive," to have been inhibited in early sex experiences, to have had closer attachments to the mother, and seemed to be childless in more cases than were the cervix patients. The use of single Rorschach scores for differentiating groups is always questionable, since Rorschach interpretation is based primarily on relationships between scores. Also the validity of the psychological meaning of these single scores, e.g., color-dominated responses and emotional lability, has not as yet been adequately established.

Reznikoff,[61] in a study directed at exploring relationships between breast cancer and emotional tensions, employed methods that were more adequate in some respects and less adequate in others than those used in some of the other studies. The major advantage of this study was in

the selection of control groups. A total of 75 female subjects were distributed equally into 3 groups: (1) an experimental group comprising women with malignant neoplasms; (2) a control group that included women who had benign neoplasms and, presumably, had the same somatic complaints and the same fear of having cancer as the experimental group, (both these groups were tested before diagnosis); and (3) a normal control group consisting of women selected from a cancer detection center at which they had applied for periodic check-ups and who were judged to be completely free from breast cancer. This last group, however, may have included a significant percentage of women who were fearful of cancer, inasmuch as they had been concerned enough about their physical condition to visit a cancer detection center; thus it probably was not an adequate "normal" control group. Furthermore, these 3 groups were not well matched, since the only criteria for inclusion in this study were adequate comprehension of English and the continuation of menstruation (an indirect and probably inadequate attempt at controlling the age factor). The data suggested, furthermore, that the normal group was selected from a higher socioeconomic level than either of the other 2 groups.

All the subjects were given a rather intensive battery of tests that included a questionnaire, a sentence-completion test, and a modified TAT, (Thematic Apperception Test) as well as a 2-hour interview. The major areas presumably tapped by all the tests were those of parent-child relations, heterosexual relations, and family constellations. From this questionnaire, chi-square analyses yielded significant differences among all the groups, although the greatest difference was found between the malignant and normal groups, the next between the malignant and benign groups, and the least difference between the benign and normal groups.

Significant at the 1 per cent level of the questionnaire, the major differences between the malignant and the benign groups were: (1) more frequent deaths of siblings at birth or in infancy in the malignant group; (2) more siblings in the malignant group; (3) greater responsibilities in childhood in the malignant group; (4) more frequent deaths of parents in the malignant group; and (5) more frequently only 1 sibling in the benign group. Although these are listed as 5 separate categories, they are probably highly interdependent, and thus it is difficult to assess the significance of any one of these differences. Furthermore, since approximately 70 items were analyzed on the questionnaire, many chi-square tests were done, and of these only 5 were significant at the 1 per cent level of confidence. Whereas the only differences offered were those with significance at the 5 per cent level, or better, and not the total number of differences actually calculated, it is not possible to reevaluate the data in terms of the increased value of "t," necessary for significance when many differences are calculated. On the TAT the only significant difference at the 1 per cent level was found in the number of "nurturing" themes in responses to a card that presumably explored maternal attitudes; the cancer group perceived maternal figures as consoling and protective less frequently than did the benign group. The authors also found on this test a greater tendency toward sexual confusion and misidentification of the female sex in the cancer group. The sentence-completion test offered no significant differences at better than the 5 per cent level, but at this level the cancer group appeared more ambivalent toward heterosexual relations; and the benign group showed more positive family attitudes.

When the malignant group was compared with the normal control group the same differences were found, but in some cases the differences were even greater between these 2 groups. The benign group, on the other hand, differed from the normal group in only a few respects; the differences were never significant at better

than the 5 per cent level and primarily reflected differences in family constellations and in educational and occupational levels.

Since both the cancer and the benign group came from a lower socioeconomic level, and had less schooling than the normal group, it is necessary to use caution in considering the possible interpretations of differences obtained when both the cancer and the benign groups were compared with this normal group. Furthermore, the authors made so many tests of significance it is possible that by chance alone some significant differences might have occurred. Although the authors realized this, it is unfortunate that they presented and tended to interpret a large number of differences that were significant only between the 10 per cent and 5 per cent levels. Thus they estimated that a possible factor in the pathogenesis of cancer may be the interaction of a constitutional weakness with emotional tension resulting from external pressures—a conclusion not very firmly grounded.

Fisher and Cleveland[20] also were interested in the relation between personality factors and cancer, but they approached the problem with a rather original point of view. On the basis of their studies of other bodily disorders (e.g., rheumatoid arthritis), they hypothesized a relation between body image and the site of the disorder. In particular, they were concerned with comparing patients with "interior" cancer with those with "exerior" cancer. They believed that these 2 types of patients would reveal different concepts of the body inasmuch as the one with interior "symptoms" might visualize his body surface as very permeable and easily penetrable, whereas the patient with exterior symptoms would more often conceive of his body as "surrounded and protected by a sheath." These assumptions were tested by the use of the Rorschach Test, from which "barrier" and "penetration" scores were obtained. Responses that stressed "sheathing," or the protective value of the surface of a given percept, were classified as "barrier" scores; responses that referred to the concept of penetration through a surface were called "penetration" scores. Blind sorting of Rorschach protocols were used at first with a small group of patients, 6 with melanomas (exterior group) and 11 with cancer of the cervix (interior group). Only 2 of these cases were mismatched. Later the study was extended to include 59 "exterior" cases and 30 "interior" cases. The interior group consisted mainly of women with cancer of the cervix and a few men and women with cancer of the colon, lung or stomach. The exterior group primarily comprised women with cancer of the breast and a few with melanomas, cancer of the skin. A chi-square or analysis was made between the number of "barrier" and "penetration" scores for the 2 groups on the assumption that such scores indicated body-image concepts. At the 1 per cent level of confidence the exterior group gave more barrier responses and the interior group more penetration scores. Controls also were made to isolate the variable of difference in patients' attitudes to the symptoms as a cause of difference in body image in both groups. This was done by comparison between a control group, previously tested with the Rorschach over 10 years after colostomies performed because of cancer, and the experimental groups who had known about the cancer only about 1 year. The authors argued that if the impact of the cancer symptoms determined the body-image scores then the control group should give a significantly higher penetration-of-boundaries score than the patients in the experimental groups. A chi-square analysis, however, did not yield a significant difference between the 2 groups. The authors concluded that body-image fantasies express basic attitudes that the individual adopts toward his body and which in turn reflect his style of life. They also maintained that the subject's choice between exterior and interior cancer sites represents the final result of adherence to a certain style of life. The major question offered by this study is the authors' inter-

pretation of these "barrier" and "penetration" scores. Too, their criteria for classifying cancer as "internal" and "external" would seem to bear a minimal relationship to the usually recognized 3 primary germ layers.[3] The 2 groups employed do not seem to be matched in any important respects, aside from age. For example, 1 male subject was included in the "exterior" group whereas 5 men were included in the "interior" group. Furthermore, each group included several different types of cancer.

LeShan and Worthington[39] also studied the possible psychological correlates of cancer by the use of a projective test called the Worthington Personal History. This test presumably explores a variety of areas such as family, school, hobbies, interests, and aims, and the responses are interpreted according to both form and content. The authors tested 152 patients with cancer of varying types and compared the results with those obtained in 125 control patients with other illnesses or no known disease. Their general findings were that the cancer group differed significantly from the control group in 3 ways: (1) the cancer group had suffered some loss of an important relationship before the tumor was diagnosed; (2) they showed an inability to express hostile feelings; and (3) they showed greater anxiety about the death of a parent—in many cases an event that had occurred far in the past. In order to check these findings the authors subjected 28 new protocols to the same psychological analysis, and predictions were made concerning which patients had neoplastic disease and which did not, solely on the basis of the presence or absence of the 3 factors noted above. Correct predictions were made in 24 out of 28 cases. However, the nature of the test used must be considered in evaluating these data. Judging from the example of test items offered by the authors, it is difficult to determine how accurately this test can be called a projective one. Also, inasmuch as the original validation studies on this test seem to have been done in industrial settings, one might question the application of this test to a study of personality variables of patients with cancer.

The Relation of Psychological Phenomena to Growth Rate in Neoplastic Disease

The idea that the growth rate of cancer may be influenced by psychological phenomena has received some attention. One author reported the 25-year arrest of a biopsy-proved cancer[49] and also the regression of a sarcoma of the jaw[48] in 2 patients undergoing psychotherapy. It should be pointed out, of course, that such spontaneous regression is by no means extremely rare—even in patients receiving no psychiatric treatment.[16]

A more thorough consideration of this problem was reported by physicians and psychologists at a symposium on the psychological variables in human cancer.[24] Many of the above reported findings were reviewed, together with a consideration of personality differences between cancer patients in whom the disease progressed at different rates. West[72] and others, including Cutler & Weinberg, reported their subjective impressions that the "dull" person did better than the "bright," and that those in whom the disease did not progress rapidly tended to be "worthless rascals" and totally irresponsible fanatics. Ziskind, on the other hand, believed these impressions must be considered with caution and that, instead, more attention should be placed on the relations between rate of growth and such variables as locus of lesion and method of treatment. He further called attention to the fact that in a single patient the rate of growth may vary considerably from time to time.

In an attempt to understand some of the issues involved in evaluating the psychological significance of rate of growth in neoplastic disease, Blumberg reported at this symposium[24] the results of an investigation he conducted with West and Ellis,[6] in which both "fast" and "slow" cancer

groups were compared with respect to psychological characteristics as measured by a series of psychological tests. Although the symposium paper is of the same study published in *Psychosomatic Medicine*,[6] it is necessary to scrutinize carefully both reports for a complete picture of groups used at various stages of the research, and to understand some of the errors in the treatment of the data. These authors first selected a group of 15 cases that represented the extremes of types of cancer patients with respect to disease activity, survival period, and ease of control through treatment. Although originally the test battery included the Rorschach and Thematic Apperception Tests, the Wechsler-Bellevue Intelligence Scale, and the Minnesota Multiphasic Personality Inventory, only the last of these was considered in any detail in the evaluation of differences between "fast" and "slow" patients. A comparison of IQ (Wechsler-Bellevue Intelligence Scale) revealed no difference between the groups. The Rorschach data are discussed below. No TAT data were reported. The results of the MMPI for these 15 cases indicated that the profiles of patients with rapidly progressing cancers usually showed 2 or more of the following signs: (1) high defensiveness or strong tendency to present the appearance of serenity in the presence of deeper inner distress; (2) anxiety and depression unrelieved through neurotic or normal channels of discharge; and (3) an abnormal lack of ability to decrease anxiety through usual outward corrective action.

In order to substantiate these findings the study was extended to include a total of 50 cases, of which 25 were classified as "fast" and 25 as "slow"; and a "blind" analysis and sorting was performed on the basis of the above 3 MMPI criteria. Care was taken to place patients systematically in the appropriate clinical group by surveying the statistics on the characteristic duration for each neoplastic disease. That is, the "fast" group represented patients whose diseases were progressing at a significantly faster rate than the average for that particular neoplasm, and similarly the "slow" group represented patients whose rate of disease progression was significantly less than average. Anyone surviving within plus or minus 50 per cent of the mean expected period was classified as average.

In the treatment of data as reported in this article,[6] it should be noted that the final group of 50, analyzed on the same criteria established on the basis of the original 15 cases, also includes these 15 cases, and therefore must necessarily produce spuriously high percentages of correct guesses. From a blind analysis of these 50 cases, correct guesses of "fast" and "slow" cases were made, when the MMPI criteria were considered, in 68 per cent of the slow cases and 88 per cent of the fast cases. These predictions were calculated to be significant at better than the 1 per cent level of confidence.

When this investigation was reported by Blumberg at the symposium,[24] however, 2 differences in the treatment of data, from the original study[6] become apparent: (1) the 15 cases were not included in this instance in the group subjected to blind analysis of "fast" and "slow" cases, and (2) the percentages of correct guesses seem to be calculated on a different basis—that is, the number of "slow" or "fast" cases in which guesses from the MMPI were in line with the clinical impressions, to the total number of "slow" or "fast" cases as *selected by the MMPI,* instead of to the total number of "slow" or "fast" cases *clinically determined.*

In order to evaluate their data accurately, it is necessary first to exclude the original 15 cases from the final prediction group, and then to recalculate their percentages, on the basis of correct guesses of "slow" and "fast" cases to the total number of "slow" and "fast" cases clinically determined. When this is done, predictions for the "slow" cases fall to 54 per cent (chance) and for the "fast" cases predictions become 89 per cent. It would seem, therefore, that the test criteria allow good

selection of "fast" cases but apparently only chance selection of "slow" cases.

Blumberg also reported at this symposium[24] that Rorschach test signs confirmed the personality differences obtained on the MMPI—that is, that the "fast" group seemed to show more "defensiveness" in their denial of shading, and also showed less "shock absorbing" ability and inability to reduce tension by motor discharge. These Rorschach data seem more questionable than those obtained from the MMPI, since there was only 1 statistically significant difference out of 15 calculated (greater number of shading responses in the "slow" group).

Unlike so many of the studies previously reviewed here, this survey by Blumberg, West and Ellis attempted to control many variables. The cancer groups were matched according to age and intelligence and "as far as possible" according to socioeconomic status. Also, no particular nationality or religion was found to be concentrated in either group. Whenever possible, patients were tested during the time they were in remission, were gaining weight, and were out-patients, relatively free from pain and from narcotic effects. (Obviously the very fast cases could not meet these criteria and hence were not included). Finally, all the patients had been informed of their diagnosis. On the other hand, the treatment of the data is both confusing and questionable. The error of including in the second prediction group the original cases on which criteria were especially developed, plus the inconsistency in the calculation of percentages of correct guesses from the MMPI, make it difficult to accept their conclusions as soundly established.

Comment

A survey of the above-described investigations of the possible relations between psychological factors and cancer reveals that 4 basic methods were used: (1) anecdotal, (2) interview and case history, (3) sociological and demographic analysis, and (4) psychological testing.

Many of the reports are largely anecdotal, since they either consider individual cases without any systematic approach or describe the author's speculations. These reports are little more than suggestive, and they rarely allow the reader to distinguish among those psychological characteristics which might be causative factors, those which might be typical reactions to any serious disease, and those which might show purely accidental variations.

Another technique used was that of selecting a fairly large number of cancer patients and interviewing them or analyzing their case histories. Even though more subjects were employed in these studies, many of them also are little more than anecdotal, since the specific interview method used is not indicated; and the authors' subjective interpretations of their findings provide us with considerable psychological jargon but little substantial evidence. Control groups either were not used or if included were inadequately selected. Although some of these authors attempted to analyze the interview data by statistical techniques, their uses and interpretations of the statistics often confound the issue. For example, Stephenson and Grace[66] calculated over 25 critical ratios apparently without realizing that with so many tests of significance it is necessary to raise the criterion of significance much higher than 3.

Sociological analysis also has been used, whereby the authors attempted to correlate the incidence of cancer with certain social conditions or social tensions, or both. Such studies have been questionable, at the very least, since they have either been basically anecdotal, as the American Indian study,[40] or have yielded conflicting data on the same phenomena, as in the French studies.[46, 54] Evaluation of studies using demographic analysis has been made in Section I.

Psychological tests were used in a number of studies, often in conjunction with interview and case history material. The tests most frequently employed were the familiar personality tests, such as the Ror-

schach Test and the MMPI, although one author used a test called the Worthington Personal History Test,[39] about which little information was given. Most of these studies also suffered from lack of adequate control groups, and only a few such reports demonstrate appropriate use of statistical analysis.

Although all these studies can be criticized with respect to methods and hence with respect to findings, nevertheless there is apparently some consistency in the reports of different investigators. At the same time, as one views the chronological development of the literature in this area, it becomes apparent that successive writers tended to draw their hunches directly from their predecessors who often used faulty sampling, inadequate statistical treatment etc. The danger of building up a mass of data on such a weak foundation cannot be overestimated. A general summary of all these findings is, however, in order.

In general the consensus is that cancer patients seem depressed and fearful; the use of denial and a tendency to blame themselves or others for causing their illness also seems typical. These characteristics of course might well be typical reactions to any serious illness, as many authors have indicated. Another finding frequently reported is that case histories of cancer patients indicate some "loss of support" without an adequate substitute. This "loss of support" has been interpreted by different authors to include such phenomena as the death of a parent or near relative, moving to a new neighborhood, graduating from school, and changing occupations; furthermore, the period between the "loss" and the onset of cancer ranged from 1 to 15 years. Accordingly, this observation also need not be regarded as specific for cancer, since most adult persons, healthy or diseased, have sustained one or more such "loss."

Several studies of patients with cancer of the breast and of the cervix have revealed some differences between the groups: in age of marriage (earlier marriage in those with cancer of the cervix), in number of single and married women (more single women among those with breast cancer), in number of children (fewer in the breast-cancer group), and differences in personality characteristics. It is interesting that some of these findings—the high incidence of early marriage in the group of patients with cancer of the cervix and the high incidence of childlessness and spinsterhood in women with cancer of the breast—have also been noted in the surgical literature.[7, 34, 50]

Based primarily on single score analysis of the Rorschach, breast-cancer patients are reported to be more inhibited, more orally fixated, and more superficially adjusted to their negative sexual attitudes than are cervix patients. The latter group, on the other hand, are described as more impulsive and more overt in their sexual maladjustment. Finally there is the report that patients with fast-growing cancerous tissue tend to be more defensive, more anxious, and more inhibited than patients with slowly-growing malignant neoplasms.

In order to evaluate more fully all the above findings, it seems worthwhile to attempt a more detailed analysis of some of the methodological inadequacies of these studies, and to consider possible methods of carrying out future research in this area. The following considerations will be discussed: (1) the selection of cancer patients; (2) the nature of control groups; (3) the nature of measuring instruments; (4) terminology; and (5) the treatment of data.

1. The Selection of Cancer Patients

Many authors either have neglected to indicate the location, extent, or approximate duration of the cancer in patients studied, or else have stated that the patients had cancer in varying sites. Since this area of research is relatively new and so little is known, clearly defined cancer groups should be employed in which patients in any one group have cancer of the same type and at approximately the same

stage. Some sort of delineation has of course been done in some studies. Furthermore, authors reporting on any study of cancer patients should clearly specify not only the site and the stage of the cancer but other pertinent information on the patients, such as age, sex, occupation, socioeconomic level, intelligence etc. Although the extent of cultural influences on personality, on attitudes toward illness, and on values have been recognized, these influences must be more seriously considered in evaluating data from studies of this sort.

2. The Nature of Control Groups

Many of the studies reviewed here present data on cancer patients without any control group. This lack of a control, of course, casts considerable question on the meaning of the findings, since the results obtained might be applicable to any other group as well. If, however, one considers those studies that have used a control group, further questions arise about the nature of the control group and about how accurately significant variables in the cancer group have been matched in the control group. The cancer group should be carefully defined in terms of age, sex, marital status, intelligence, and socioeconomic level, and characterized as consisting primarily of hospitalized or out-patient groups, with or without pain, with or without recurrence or metastasis, and with or without knowledge of diagnosis, after which control groups should be chosen accordingly.

The selection of at least 2 control groups is especially important in trying to distinguish between emotional factors that may be characteristic reactions to cancer, or disease in general, and emotional factors that may play a causative role in cancer. One of these control groups should consist of patients who have some other chronic and progressive illness which is serious enough to create anxiety in the patient (nephritis or congestive heart failure, for example); another should comprise persons matched for sex and age etc., and who have no known physical illness. These controls are necessary whether one is comparing cancer with non-cancer patients, breast-cancer patients with those with cervical cancer, or "fast" with "slow" groups.

3. The Nature of Measuring Instruments

Most of the studies reviewed either have employed no systematic form of measurement (this applies to anecdotal studies) or else have used interviews or case-history analysis; only rare mention has been made of the kind of interview conducted, who conducted the interview, how it was coded, etc. Since there is considerable evidence that interview data may be significantly altered by using different interviewers or by changing the nature of the question, these factors should be controlled as much as possible. Perhaps on the basis of the findings reported in the studies reviewed here, some standard interview procedure might be constructed to ascertain some of the purported characteristics of cancer groups; this might avoid a tendency toward post-facto interpretations. In any case, reports on investigations of this sort should offer the reader specific, detailed information on the interview method employed and on the methods used to codify or classify the results. Some studies have used more objective tools of measurement, such as the MMPI, Intelligence Tests, and the less objective Rorschach Test. On the whole, however, the Rorschach Test has not seemed very effective in revealing differences between groups, whereas the MMPI, at least in the studies of Blumberg,[24] and West and Ellis,[6] has seemed to be a more useful instrument.

4. Terminology

The fact that many terms are used to describe the differences between cancer and noncancer patients, or between two different kinds of cancer patients, makes it necessary to understand more clearly how these terms are defined and the specific ways in which they are used. For example, one reads frequently of cancer patients

suffering from "loss of object," but there is rarely a clear definition of this concept. This use of loose and often arbitrary terms is demonstrated throughout these studies, e.g., "inhibited motherhood," "masochistic character structure," etc. It would be useful, therefore, before further research is done, to arrive at some more objective, operational definition of those very terms most frequently used to describe cancer patients.

5. The Treatment of Data

There is a serious lack of statistical tests in most of the studies reviewed here. Accordingly, the fact that differences have been reported between any 2 groups in any respect may be entirely attributable to chance factors and to errors in sampling. Some authors, of course, have applied statistical tests, but not always appropriately. Finally, statistical treatment of Rorschach data always presents serious problems: e.g., whether one compares percentage scores or absolute numbers, whether one totals the number of human-movement responses for the whole group or calculates for each patient the proportion of responses which were human-movement, etc. Cronbach[12] has written an excellent article on statistical treatment of Rorschach data that should certainly be referred to in investigations of this type.

In summary, then, the methods so far used to investigate the psychological correlates of cancer are open to criticism with respect to both approach and experimental design. Furthermore, the methods used raise serious questions regarding the validity of the conclusions.

Although it is possible that a relationship exists between the development or growth of cancer and the life history or psychological characteristics of an individual, the studies attempting to show such a phenomenon are unconvincing. If, indeed, such a hypothesis is true, it cannot be shown from the available research. The data could be interpreted about equally as well to show that there is no such relationship. For example, it appears that the incidence of cancer death rate in psychotic patients is only slightly greater than that in the normal population—which may be due to chance—and which suggests slight if any relationship between psychiatric history and malignant growth. In short, investigations so far undertaken in this area have yielded ambiguous results. If this problem is to be settled, further work of the type delineated in this review is imperative.

Summary

The literature on the psychological aspects of cancer has been critically reviewed under 4 main categories, and the following generalizations may be made:

1. Published studies suggest a slightly higher cancer death rate in hospitalized psychotic patients than in the normal population; the reason for this is obscure and may well be due to the inadequacy of the statistics.

2. The psychological reactions and defenses of persons to the development of cancer are reported to be similar to those found in neurotic patients. Particularly prominent are depression and a sense of guilt.

3. Some authors report the development of cancer secondary to emotional trauma, or believe that cancer appears in patients with specific immature types of personality.

4. One group reports that established cancer grows more slowly in less inhibited individuals.

The methods used in these studies may be grouped into 4 basic types—anecdotal, interview and case history, sociological and demographic analysis, and psychological testing. Unfortunately most of the studies suffer from inadequacy of design, and consequently the reported findings are subject to question.

Specific suggestions are made for future research in this field, specifically in regard to the selection of cancer patients, the nature of control groups, the nature of measuring instruments, terminology, and sta-

tistical analysis. It is hoped that adoption of such suggestions by future investigators will open the way for more fruitful and scientific research in this complex field.

References

1. Abrams, R. D. Social casework with cancer patients. *Soc. Casewk. 32:*425, 1951.
2. Abrams, R. D. and Finesinger, J. E. Guilt reactions in patients with cancer. *Cancer 6:*474, 1953.
3. Arey, L. B. *Developmental Anatomy.* Phila. & London, W. B. Saunders Co., 1954.
4. Bacon, C. L., Renneker, R., and Cutler, M. A psychosomatic survey of cancer of the breast. *Psychosom. Med. 14:*453, 1952.
5. Bard, M., and Dyk, R. B. The psychodynamic significance of beliefs regarding the cause of serious illness. *Psychoanalyt. Rev. 43:*146, 1956.
6. Blumberg, E. T., West, P. M., and Ellis, F. W. A possible relationship between psychological factors and human cancer. *Psychosom. Med. 16:*277, 1954.
7. Boyd, W. A Text-book of Pathology. 6th Ed., Philadelphia, Lea and Febiger, 1953.
8. Buel, E. S. Maligne Tumoren bei Geisteskrankheiten. *Allg. Ztschr. f. Psychiat. 80:*312, 1925.
9. Butler, B. The use of hypnosis in the care of the cancer patient. *Cancer 7:*1, 1954.
10. Chevens, L. C. F. The correlation of cause of death with type of insanity. *J. Ment. Sc. 77:*562, 1931.
11. Copeman, S. M., and Greenwood, M. *Diet and Cancer.* Great Britain Ministry of Health Report, No. 36, 1926.
12. Cronbach, L. D. Statistical methods applied to Rorschach scores. *Psychol. Bull. 46:*393, 1949.
13. Daland, E. M. Palliative treatment of the patient with advanced cancer. *J.A.M.A. 136:*391, 1948.
14. Decker, C. E. Management of a permanent colostomy. *Lancet 2:*12, 1947.
15. Dunbar, F. *Emotions and Bodily Changes.* (4th Ed.) New York, Columbia University Press, 1954.
16. Dunphy, J. E. Some observations on the natural behavior of cancer in man. *New England J. Med. 242:*167, 1950.
17. Ehrentheil, O. F. Malignant tumors in psychotic patients. *A.M.A. Arch. Neurol. & Psychiat. 76:*529, 1956.
18. Evans, E. *A Psychological Study of Cancer.* New York, Dodd, Mead and Co., 1926.
19. Finesinger, J. E., Shands, H. C., and Abrams, R. D. "Managing the emotional problems of the cancer patient." *Clinical Problems in Cancer Research.* Sloan-Kettering Institute Seminar, p. 106, 1948-49.
20. Fisher, S., and Cleveland, S. E. Relationship of body image to site of cancer. *Psychosom. Med. 18:*304, 1956.
21. Forgue, H. Le problème du cancer dans ses aspects psychiques. *Gaz. d. hôp. 104:*827, 1931.
22. Freeman, W. Biometrical studies in psychiatry. III. The chances of death. *Am. J. Psychiat. 8:*425, 1928.
23. Freund, W. A. Zur Naturgeschichte der Krebskrankheit nach klinischen Erfahrungen. *Ztschr. Krebsforsch. 3:*1, 1905.
24. Gengerelli, J. A., and Kirkner, F. J. *The Psychological Variables in Human Cancer.* Berkeley and Los Angeles, University of California Press, 1954.
25. Gibson, W. T. *The Etiology and Nature of Cancerous and Other Growths.* London, John Bale, Sons & Danielsson, 1909.
26. Ginzberg, R. Should the elderly cancer patient be told? *Geriatrics 4:*101, 1949.
27. Gitelson, M. The rôle of anxiety in somatic disease. *Ann. Int. Med. 28:*289, 1948.
28. Greene, W. A., Jr. Psychological factors and reticuloendothelial disease: I. Preliminary observations on a group of males with lymphomas and leukemias. *Psychosom. Med. 16:*220, 1954.
29. Greene, W. A., Jr., Young, L. E., and Swisher, S. N. Psychological factors and reticuloendothelial disease: II. Observations on a group of women with lymphomas and leukemias. *Psychosom. Med. 18:*284, 1956.
30. Grinker, R. R., and Robbins, F. P. *Psychosomatic Case Book.* New York and Toronto, The Blakiston Company, Inc., 1954.
31. Hahnemann, V. Undersøgelser over kraeftdødelighedon hos sindssyge. *Ugesk. Laeger 93:*1132, 1931.
32. Special Report of Dept. Public Health & Public Welfare. *House Document No. 1200.* Commonwealth of Massachusetts, December, 1925.
33. Immerman, S. L. Manic depressive psychoses associated with malignant conditions. *N. York M. J. 106:*828, 1917.
34. Jessiman, A. G., and Moore, F. D. Carcinoma of the breast: The study and treatment of the patient. *New England J. Med. 254:*846, 1956.
35. Josephy, H. Analysis of mortality and causes of death in a mental hospital. *Am. J. Psychiat. 106:*185, 1949.
36. Kline, N. S., and Sobin, J. The psychological management of cancer cases. *J.A.M.A. 146:*1547, 1951.
37. Kline, N. S., and Tenney, A. M. Constitutional factors in the prognosis of schizophrenia. *Am. J. Psychiat. 107:*434, 1950.
38. Kowal, S. J. Emotions as a cause of cancer. *Psychoanalyt. Rev. 42:*217, 1955.
39. LeShan, L., and Worthington, R. E. Some psychologic correlates of neoplastic disease: a

preliminary report. *J. Clin. & Exper. Psychopath. 16*:281, 1955.
40. Levin, I. Cancer among the American Indians and its bearing upon the ethnological distribution of the disease. *Ztschr. Krebsforsch. 9*:422, 1910.
41. Lewis, N. D. C. *Research in Dementia Precox.* The National Committee for Mental Hygiene, 1936.
42. Lind, W. A. T. Cancer and chronic insanity. *M. J. Australia 2*:378, 1928.
43. Lomer, R. Zur Frage der Heilbarkeit des Carcinoms. *Ztschr. Geburtsn. u. Gynak. 50*:305, 1903.
44. Lord, J. R., and McGrath, M. J. The incidence of cancer in mental hospital patients and in the general population of England and Wales compared. a) Report of the Infectious Disease Sub-Committee of the Research and Clinical Committee (Royal Medico-Psychological Association) (First Report). *J. Ment. Sc. 76*:223, 1930.
45. Lucksch, F. Geisteskrankheit und maligne Tumoren. *Schweiz. med. Wchnschr. 76*:135, 1946.
46. Lumière, A., and Vigne, P. Les influences morales dans la cancérose. *Bull. Acad. de méd., Paris 106*:272, 1931.
47. Lund, C. C. The doctor, the patient, and the truth. *Ann. Int. Med. 24*:955, 1946.
48. Meerloo, J. A. M. Psychological implications of malignant growth: a survey of hypotheses. *Brit. J. M. Psychol. 27*:210, 1954.
49. Meerloo, J. A. M., and Zeckel, A. "Psychiatric problems of malignancy." (In) *Psychology of Physical Illness.* (Ed., Bellak, L.). New York, Grune and Stratton, 1952.
50. Meigs, J. V. "Cancer of the cervix." *Cancer. 3rd Edition.* American Cancer Society (Massachusetts Division), Inc., Boston, 1956.
51. Meyer, W. *Cancer.* New York, Paul B. Hoeber, Inc., 1931.
52. Miles, H. H. W., Cobb, S., and Shands, H. C. (Eds.) *Case Histories in Psychosomatic Medicine.* New York, W. W. Norton & Co., Inc., 1952.
53. Miller, F. R., and Jones, H. W. The possibility of precipitating the leukemic state by emotional factors. *Blood 3*:880, 1948.
54. Moinson, L., and Stéphanopoli, T. Le rythme du cancer à Paris. *J. de méd. de Paris, 50*:331, 1930.
55. Moore, J. Problems of cancer therapy in a state hospital. *Psychiatric Quart. 16*:107, 1942.
56. Opsahl, R. Om krefthyppigheten blandt sinnessyke. *Nord. mag. laegevidensk. 94*:771, 1933.
57. Peller, S., and Stephenson, C. S. Cancer in the mentally ill. *Pub. Health Rep. 56*:132, 1941.
58. Pollack, O. J. Postmortem studies in mental patients. Frequent findings in paranoid states. *Am. J. Clin. Path. 14*:289, 1944.
59. Pool, A. The incidence of cancer in mental hospital patients and in the general population of England and Wales compared. b) A study of the incidence of cancer over a period of twenty-five years at the County Mental Hospital, Rainhill. *J. Ment. Sc. 76*:234, 1930.
60. Renneker, R., and Cutler, M. Psychological problems of adjustment to cancer of the breast. *J.A.M.A. 148*:833, 1952.
61. Reznikoff, M. Psychological factors in breast cancer: A preliminary study of some personality trends in patients with cancer of the breast. *Psychosom. Med. 17*:96, 1955.
62. Rudolph, G. deM., and Ashby, W. R. The relative mortality of cancer in the general population and in the mental hospitals of England and Wales. *J. Ment. Sc. 80*:223, 1934.
63. Scheflen, A. E. Malignant tumors in the institutionalized psychotic population. *A.M.A. Arch. Neurol. & Psychiat. 66*:145, 1951.
64. Shands, H. C., Finesinger, J. E., Cobb, S., and Abrams, R. D. Psychological mechanisms in patients with cancer. *Cancer 4*:1159, 1951.
65. Sheldon, W. H. *Varieties of Delinquent Youth.* New York, Harper & Brothers, 1949.
66. Stephenson, J. H., and Grace, W. J. Life stress and cancer of the cervix. *Psychosom. Med. 16*:287, 1954.
67. Sutherland, A. M., Orbach, C. E., Dyk, R. B., and Bard, M. The psychological impact of cancer and cancer surgery. I. Adaptation to the dry colostomy; preliminary report and summary of findings. *Cancer 5*:857, 1952.
68. Tarlau, M., and Smalheiser, I. Personality patterns in patients with malignant tumors of the breast and cervix. An exploratory study. *Psychosom. Med. 13*:117, 1951.
69. Trawick, J. D. The psychiatrist and the cancer patient. *Dis. Nerv. System 11*:278, 1950.
70. Trunnell, J. B. *Second Report on Institutional Research Grants of the American Cancer Society, p. 181.* American Cancer Society, Inc. New York, 1952.
71. Warren, S. and Canavan, M. M. Frequency of cancer in the insane. *New England J. Med. 210*:739, 1934.
72. West, P. M., Blumberg, E. M., and Ellis, F. W. An observed correlation between psychological factors and growth rate of cancer in man. *Cancer Res. 12*:306, 1952.
73. Wheeler, J. P., and Caldwell, B. McD. Psychological evaluation of women with cancer of the breast and of the cervix. *Psychosom. Med. 17*:256, 1955.
74. White, W. A. The social significance of mental disease. *A.M.A. Arch. Neurol. & Psychiat. 22*:873, 1929.
75. Williams, W. R. *The Natural History of Cancer.* London, William Heinemann, 1908.

Bowel Obstruction

A Case Presentation

JOSEPH WEISS, M.D.

THIS BRIEF COMMUNICATION describes a series of occurrences in the life of a former patient that, because of their interesting and somewhat dramatic nature, are worth reporting.

For one year I saw in psychotherapy a man in his late thirties, who came to me with vague complaints. He felt lost and depressed. He did not know where he was going as far as his occupation was concerned, and his relationships with people were not satisfying. He appeared suspicious and distrustful, and, during the entire period of therapy, he remained quite guarded. He was an overt homosexual; his relationships with men were brief, often passionate, and often ended in a quarrel. If he attempted a more prolonged relationship with a man, he usually became bored with him. I felt from the beginning that since he had a potentiality for being very depressed, perhaps suicidal, and since he had paranoid tendencies, I would keep the therapy superficial and supportive.

He was helped by the therapy considerably, in several ways. His friendships with men became somewhat more stable so that he could continue a relationship with one man for a longer time, and his work situation improved so that he progressed from a poor job situation to being a well-paid, junior executive in a large sewer-pipe manufacturing company. This was an interesting choice of work, because the patient was preoccupied with his bowels. During the therapy he had occasional periods of constipation, which were connected with feelings of stubbornness toward me. He would relieve his constipation by giving himself enemas and laxatives.

I knew how important I was to this patient, so that I was reluctant to discharge him, but after considerable preparation for the separation I did discharge him. Several months after the discharge I received a call from an internist to whom I had sent the patient during the treatment. He told me that the patient was in the hospital and that he had been operated on ten days before for bowel obstruction.* The patient was not doing well. He had had no bowel movements since the operation and a new operation was being considered. The internist asked me to see the patient. During my hour with the patient that evening, I said little. The patient was panicky. He feared he would die. He wept, saying he knew what was important now; his silly, everyday concerns were nothing. Life itself was all that really mattered. I promised to see him again in several days. When I returned he looked much better. He reported that he had a large bowel movement

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*The surgeon had found old adhesions, probably the aftermath of an appendectomy that the patient had had at two years of age. The significance of these adhesions was equivocal.

15 minutes after I had left. He was eating well and was having bowel movements regularly. He asked me then why I had not shaken hands with him after the last time I had seen him in therapy.

I saw the patient a few days after this and he told me that the Harris tube was to come out that night. Several days passed before I saw him again. In the meantime I had heard from his internist that new problems had arisen. Any attempt to take out the tube made the patient panicky and brought back symptoms of obstruction, and this was true even though the tube had been turned off for several days. I was aware of how suspicious and eager for control the patient was, so I suggested that the patient be permitted to pull the tube out himself so as to give him a sense of control. This was tried and it did not work.

During the next week several more attempts were made to get the patient to pull out the tube and all were failures. The patient again was becoming panicky and his bowel obstruction symptoms recurred again. Disagreement arose at this time between the surgeon and the internist as to what to do. The surgeon of course wanted to operate and the internist wished to delay. The psychiatrist tended to side with the internist, but no one was very sure of himself. I mention this because the patient became aware of these disagreements and they added to his panic. He was constantly asking each doctor detailed questions about his treatment, about the prognosis, and whether a second operation would be necessary. He was observing himself very carefully, trying, as he put it, to learn all he could about the problem so that he too could help. At the same time he was often very frightened and crying in a rather childish way. I decided that my suggestion to give him some responsibility for the tube coming out had backfired. It encouraged him to feel that he was responsible for what happened in his bowel. He had interpreted the good effect of my first visit as proof that his problem was psychosomatic, and this meant to him that if he had the right thoughts he would get well. The doctors' confusion added to his sense of responsibility. The responsibility that he was shouldering was very frightening and he was retreating from it by becoming more and more of a baby. Having lost faith in the doctors, he developed faith only in the tube.

I suggested to his internist that he develop a more authoritarian and masterful attitude toward the patient. We agreed that the internist, after establishing this relationship with the patient, would come in and rather abruptly take the tube out in five minutes; and if the patient complained or looked panicky, he was to be told gently but firmly to be quiet. This was carried out as planned and the results were very effective. When I saw the patient the next day, he complained a little about the authoritarian attitude of the internist, but in a somewhat teasing, friendly way. He told me that he had almost forgotten by now that he had ever had a tube; the experience of having the tube seemed like a dream which had passed. The patient improved rapidly and was discharged about a week later.

I have described the developments of this situation as I experienced them and realize that I have left many questions unanswered. No definite answers are possible, but one can speculate on the following: The bowel obstruction, itself, may have been precipitated by the patient's discharge from therapy. A lonely and suspicious person was separated from someone of importance to him. The re-establishing of a relationship with me, on my first visit, permitted his first bowel movement after the operation. At that time the patient, half out of desperation, developed some sense of trust in the psychiatrist, but this did not last. The patient now believed that his problem was psychosomatic and he resolved to cure himself by having the right thoughts and attitudes. We were aware of his suspiciousness and need for control and mistakenly played along with it by giving him responsibility for the removal of the

tube. The patient's sense of responsibility was further strengthened by the confusion he was able to detect among the doctors. He lost faith in the doctors and retained it in the tube. Only after the internist behaved in what the patient considered a masterful way was he able to trust the doctor and give up the tube.

I saw the patient six weeks after his discharge from the hospital. He could scarcely remember how he had felt in the hospital. He was intensely grateful to me and out of gratitude asked to re-enter therapy. I told him this was not necessary but I would always be available to him when he wanted an appointment. The patient called me several times during the next year and has continued to feel well.

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News of the Society

Minutes of the 1959 Business Meeting

The following is a summary of the minutes of the Annual Business Meeting of the American Psychosomatic Society, held in Atlantic City, New Jersey, on May 2, 1959.

Membership

Dr. Milton Rosenbaum, President of the Society, called the meeting to order and asked for Dr. Morton Reiser's report, the Secretary-Treasurer. Dr. Reiser stated that as of May 1959, the total membership in the Society numbered 654. Five members were lost because of death and fifteen resigned. Thirty-three new members were elected at the current meeting of the Council; and four members were elected to Emeritus membership: Dana W. Atchley, W. Edward Chamberlain, Roscoe W. Hall, Alexander B. Leeds.

Deaths

The members of the Society rose as Dr. Reiser read the names of those who had died during the year: Leonard Blumgart, Richard M. Brickner, Thomas McC. Mabon, Irving J. Sands, Clara M. Thompson.

Finances

Dr. Reiser's report indicated that the audit is in order and the Society is solvent. A motion was made to accept Dr. Reiser's report. It was seconded and passed.

Dr. Reiser added that he wished to remind the membership that the office of the Society receives a large number of requests from young people interested in training opportunities in areas of psychosomatic medicine. The Society office is glad to supply information to those inquiring, if such data will be supplied to the Society office.

Psychosomatic Forums

Dr. Bela Mittelmann,* Chairman of the Committee on Psychosomatic Forums, reported there are eight active Forums, Philadelphia having developed an active Forum. The new Chairman of the New York Forum, Dr. Benjamin Kissen, would like to have closer contact in the future with groups in the various fields of medicine. Dr. Mittelmann added that development of a forum depends on the local desire and need. Anyone wishing to start a forum in his area should write to the Society's office and the necessary information will be provided. A motion was made to accept Dr. Mittelmann's report. It was seconded and passed.

"Psychosomatic Medicine"

Dr. Carl Binger, Editor-in-Chief of PSYCHOSOMATIC MEDICINE, reported that 103 manuscripts were received in 1958 as compared to 80 in 1957; 36 were accepted in 1958, 26 in 1957. Manuscripts rejected during the year numbered 57, compared with 43 rejections in 1957. The Journal has no backlog of material now, which should be an advantage to contributors. One special article was published this year. Dr. George C. Ham is now a full Editor, and Dr. David Hawkins, a former Associate Editor, has replaced Dr. Ham as Abstract Editor. The readers of the Journal were canvassed regarding the desirability of publishing a Cumulative Index at the end of the twentieth year of the

*Deceased Oct. 4, 1959.

Journal's existence. The canvas resulted in a large majority of favorable replies. Additional funds are needed, however, before the Society can undertake this project. Dr. Rosenbaum thanked Dr. Binger for his report. A motion was made to accept Dr. Binger's report. It was seconded and passed.

Election of Officers and Council Members

Dr. Rosenbaum called for results of the balloting for election of Officers and new Council Members. Ballots had been circulated before the meeting, with the proposal that the Nominating Committee, through the Council, submit to the membership a slate of nominees for replacement of officers and Councillors whose terms of office expire at the end of the current year. This slate will propose one nominee for each office and Council position that will be open. This proposal will supplant the procedure of proposing names in excess. A motion of approval was made, seconded and passed. Dr. Rosenbaum announced the results of the elections as follows: For President: ERIC D. WITTKOWER; for President-Elect: MORTON F. REISER; for Secretary-Treasurer: EUGENE MEYER; Council appointments: GEORGE L. ENGEL, DAVID A. HAMBURG, and DAVID R. HAWKINS.

Dr. Rosenbaum asked if there was any new business. As there was no other business, Dr. Rosenbaum asked for a motion to adjourn the 1959 Business Meeting, which was carried.

New Members

At its Annual Meeting, held in Atlantic City on May 2 and 3, 1959, the following were elected to membership in the American Psychosomatic Society:

HASSAN AZIMA, M.D., 1025 Pine Avenue West, Montreal 2, Canada (Assistant Professor of Psychiatry, Allan Memorial Institute).

RICARDO H. BISI, M.D., 1225 Park Avenue, New York 28, New York (Special Fellow, Head and Neck Surgery, St. Vincent's Hospital).

MORTON D. BOGDONOFF, M.D., Duke Hospital, Durham, North Carolina (Assistant Professor of Medicine, Duke University School of Medicine).

RICHARD CHESSICK, M.D., United States Public Health Hospital, Lexington, Kentucky.

JOHN F. DAVIS, M.D., 1025 Pine Avenue West, Montreal 2, Canada (Director, Department of Electrophysiology, Allan Memorial Institute).

ALFRED FLARSHEIM, M.D., 25 East Washington Street, Chicago 2, Illinois (Clinical Assistant Professor, Psychiatry, University of Illinois College of Medicine).

JOHN M. GRANT, M.D., Strong Memorial Hospital, Rochester 20, New York (U.S.P.H.F. and Instructor in Medicine and Psychiatry, Strong Memorial Hospital).

NORMAN S. GREENFIELD, PH.D., Department of Psychiatry, University Hospitals, Madison 6, Wisconsin (Assistant Professor of Clinical Psychology, University of Wisconsin Medical School).

NORMAN B. HIRT, M.D., 929 Birks Building, 718 Granville Street, Vancouver 2, Canada (Clinical Instructor in Psychiatry, University of British Columbia Medical School).

EUGENE H. KAPLAN, M.D., 15 Canterbury Road, Great Neck, New York (Staff Psychiatrist, Obstetrics-Gynecology Department, Long Island Jewish Hospital).

MICHAEL KEHOE, M.D., Strong Memorial Hospital, Rochester 20, New York (Instructor in Medicine and Psychiatry, University of Rochester School of Medicine).

LEONID KOTKIN, M.D., 242 East 19 Street, New York 3, New York.

LEON LEFER, M.D., 239 Central Park West, New York 24, New York (Junior Attending, Psychiatry, Presbyterian Hospital).

WILLIAM C. LEWIS, M.D., 110 East Main, Madison 3, Wisconsin (Associate Clinical Professor of Psychiatry, University of Wisconsin Medical School).

ELLIOT D. LUBY, M.D., Lafayette Clinic,

951 East Lafayette, Detroit 7, Michigan (Assistant Professor of Psychiatry, Wayne State University College of Medicine).

RICHARD M. MAGRAW, M.D., University of Minnesota Hospitals, Minneapolis 14, Minnesota (Associate Professor, Departments of Psychiatry and Internal Medicine, University of Minnesota).

ROBERT B. MALMO, PH.D., 1025 Pine Avenue West, Montreal 2, Canada (Director, Laboratory for Psychological Studies, Allan Memorial Institute).

JOHN W. MASON, M.D., Department of Neuroendocrinology, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington 12, D. C.

MYER MENDELSON, M.D., Department of Psychiatry, Hospital of the University of Pennsylvania, Philadelphia 4, Pennsylvania (Assistant Professor of Psychiatry, University of Pennsylvania).

JOHN O. NEUSTADT, M.D., Johns Hopkins Hospital, Baltimore 5, Maryland (Instructor in Medicine and Psychiatry, Johns Hopkins School of Medicine).

PERRY OTTENBERG, M.D., Hospital of the University of Pennsylvania, Philadelphia 4, Pennsylvania (Instructor, Department of Psychiatry, University of Pennsylvania).

LAWRENCE J. ROOSE, M.D., 1140 Fifth Avenue, New York 28, New York (Assistant Attending Psychiatrist, Mt. Sinai Hospital).

JOHN A. ROSE, M.D., 1700 Bainbridge Street, Philadelphia 46, Pennsylvania (Child Psychiatrist-in-Chief, Department of Child Psychiatry, Children's Hospital).

I. W. SCHILLER, M.D., 520 Beacon Street, Boston 15, Massachusetts (Associate Clinical Professor of Medicine, Tufts University Medical School).

LASZLO SCHWARTZ, D.D.S., 2 East 54 Street, New York 22, New York (Clinical Professor of Dentistry, Columbia University).

CHARLES SHAGASS, M.D., Psychopathic Hospital, 500 Newton Road, Iowa City, Iowa (Staff Psychiatrist, Psychopathic Hospital).

MILTON J. STEINHARDT, M.D., 10720 W. Seven Mile Road, Detroit 21, Michigan (Associate Physician, Grace Hospital).

GARFIELD TOURNEY, M.D., Lafayette Clinic, 951 East Lafayette, Detroit 7, Michigan (Assistant Professor in Psychiatry, Wayne State University College of Medicine).

RALPH W. WADESON, JR., M.D., 4306 Sleaford Road, Bethesda, Maryland (Psychosomatic Section, Clinical Investigations, Adult Psychiatry Branch, National Institute of Mental Health).

CHARLES WINKELSTEIN, M.D., 8 East 96 Street, New York 28, New York (Clinical Assistant Psychiatrist, Mt. Sinai Hospital).

LYMAN C. WYNNE, M.D., 5868 Marbury Road, Bethesda 14, Maryland (Chief, Section on Family Studies, Adult Psychiatry Branch, National Institute of Mental Health).

FREDERICK J. ZIEGLER, M.D., Scripps Clinic and Research Foundation, 476 Prospect Street, La Jolla, California.

Dr. Conn Appointed

Dr. Jacob H. Conn, a member of the American Psychosomatic Society, has been elected President of the National Society for Clinical and Experimental Hypnosis.

Seventeenth Annual Meeting

The American Psychosomatic Society will hold its Seventeenth Annual Meeting at the Sheraton-Mt. Royal Hotel in Montreal, Canada, on Saturday and Sunday, March 26 and 27, 1960.

The Program Committee would like to receive titles and abstracts of papers for consideration for the program no later than December 1, 1959. The time allotted for presentation of each paper will be ten or twenty minutes.

Abstracts, of two or three pages, in nine copies, should be submitted for the Program Committee's consideration, to the Chairman, at 265 Nassau Road, Roosevelt, N. Y.

ERIC D. WITTKOWER, M.D.
Chairman, Program Committee
FRED BROWN, PH.D.
LOUIS GOTTSCHALK, M.D.
EUGENE MEYER, M.D.
MORTON REISER, M.D.
MILTON ROSENBAUM, M.D.
JOHN SPIEGEL, M.D.
STEWART WOLF, M.D.

Postgraduate Course in Psychosomatic Medicine

The Department of Psychiatry of Temple University Medical Center announces a postgraduate course in Psychosomatic Medicine for non-psychiatric physicians beginning Wednesday, October 7, 1959.

The course, sponsored by the National Institute of Mental Health, will be headed by O. SPURGEON ENGLISH, M.D., Professor and Head of the Department of Psychiatry; EDWARD WEISS, M.D., Professor of Clinical Medicine; and H. KEITH FISCHER, M.D., Associate Professor of Psychiatry, Temple University Medical Center.

DR. H. KEITH FISCHER is director of the course. All inquiries and applications should be addressed to him, in care of the Department of Psychiatry, Temple University Medical Center, Broad and Ontario Sts., Philadelphia, 40, Pa.

Abstracts of Papers Presented at the Annual Meeting of the American Psychosomatic Society

May 2 and 3, 1959, Atlantic City, New Jersey

James E. Hart, Joan K. Jackson, and Thomas H. Holmes

A medical and psychosocial study of tuberculous patients who relapse to infectious sputum during hospitalization

This research evaluates three factors contributing to sputum relapse: (a) change in disease status, (b) drug therapy complications, and (c) psychosomatic factors.

Patients studied had positive sputum on admission, converted to negativity, maintained negative sputum for three consecutive months, and relapsed to positive sputum. Controls were matched with patients as to extent, type and localization of disease, age, and sex.

There were no differences between patients and controls in type or changes of disease or drug regimens. Patients had more side reactions to drugs, but equal amounts of the drugs for equal time periods. More controls had resistant organisms. More controls had unstable, changing disease. On current x-ray changes or disease complications, more controls had a high probability of sputum relapse.

Patients and controls differed in background and accomplishments. Patients had a consistent pattern of failure in adjusting to life situations and in maintaining interpersonal relationships.

Patients had greater difficulties in hospital adjustment. Confronted with similar social and emotional problems during hospitalization patients and controls reacted differently. Controls utilized emotional and social resources to solve problems. Patients experienced greater difficulties with resultant emotional upheaval. These periods of crisis exactly dovetailed with the time at which positive sputum appeared.

Predictions of subsequent relapse in sputum within one year were made for each member of the control group, and were 100 per cent accurate.

J. Rainer, A. Mesnikoff, L. C. Kolb, and A. Carr, Ph.D.

Homosexuality and heterosexuality in identical twins

Twin studies have been used to demonstrate the extent of the genetic contribution to human behavioral traits and disorders. As they have in other psychiatric conditions, such studies in the case of homosexuality have indicated a high degree of concordance in monozygotic male twins. However, a genetic predisposition always expresses itself by way of a long and complex interactional process with the physical and social environment, including the family. In those rare cases, therefore, where there is an overt dissimilarity in sexual object choice despite genetic identity, the developmental factors which led to this divergence should be particularly outstanding and amenable to study.

After reviewing theories of homosexuality on the one hand and special psychodynamic problems of twins on the other, this paper describes two pairs of twins, in each of which the members differ in preferred sexual role. In addition to cytological, biochemical, and psychological tests, they were investigated by the free-associational method and by family and social studies looking for the patterns of family

relationship which influenced their psychosexual development. Data were sought regarding their psychopathology, their self-concept and body image as derived from the family transactions, their attitudes toward being a twin and to separation from the twin, their fantasy and dream life, important experiences, and significant relations with others. Similar life factors leading to a hostile identification with the parent of the opposite sex were found in the homosexual member of each pair.

Earle L. Lipton, Alfred Steinschneider, and Julius B. Richmond

Some physiologic effects of infant swaddling

In recent studies of cardiac-rate responses in newborn infants, we observed some correlation with motor activity. In order to study this relationship more carefully, we have undertaken a series of experiments in which cardiac-rate responses are obtained under conditions of motor restraint as contrasted to free activity. It was our desire to apply motor restraint in a fashion which simulates child-rearing practices in certain cultures; infant swaddling was, therefore, the procedure employed. This study considered swaddling primarily in terms of its effect upon the "resting" level of autonomic activity and the reactivity to external stimulation.

Ten newborn infants were repeatedy tested (average of 3.5 different sessions) in the postprandial state in a manner previously employed in this laboratory. The stimulus was a jet of oxygen of 2½ pounds pressure and 5 seconds duration via a plastic cone taped in place above the umbilicus. During each session the infant was stimulated 30 times while swaddled and 30 times while allowed motor freedom. Respiratory rate, movement, cardiotachometer measurements of heart rate, and often skin temperature were continuously recorded on a polygraph in a constant-temperature laboratory.

The average rates for *each* of the seconds during the 5 seconds of stimulation and 10 seconds following stimulation were derived for each individual. An average heart-rate response curve for each prestimulus level (arbitrarily defined in 10-beat-per-minute intervals) of heart rate was thus drawn and tests of statistical significance were obtained, where possible, by means of an analysis of variance. This analytical technique provides a relatively complete picture of the organism's heart rate response and allows for more extensive comparisons between and within individuals than have been previously reported.

Both heart-rate and respiratory responses correlated in a curvilinear manner with the prestimulus levels of these measures. Swaddling consistently produced a more stable state, characterized by lower average prestimulus heart rates, lessened vocal activity, and often lowered respiratory rate. However, the effect of swaddling upon *reactivity* was not as consistent, since five infants demonstrated a decrease, while four demonstrated no change in reactivity in terms of heart rate when restrained. One infant manifested consistently greater responses when swaddled, both in heart and respiratory rates.

The significance of these findings for an understanding of the clinical implications of the cultural practice of swaddling will be discussed. The application of these findings for the study of the commonly observed syndrome of hyperirritability in infants (colic?) will also be considered.

Sanford I. Cohen, Albert J. Silverman, and Barry M. Shmavonian

The influence of psychodynamic factors in central nervous system functioning in young and aged subjects

A matched group of 10 young and 10 old subjects were presented with pure tones, neutral phrases, and phrases designed to be "charged" for the young and for the old subjects. During this period, continuous skin-resistance recordings were carried to assess various aspects of central nervous system activity. The subjects were then interviewed by a technique structured to evaluate the degree of "memory" for the preceding experimental period, as well as the meaning of and the affective response to the test situation and stimuli.

The results indicated that both groups perceived an equal number of stimuli and that their neural conduction rates were similar. The subjects who demonstrated a lower over-all level of central nervous system arousal showed a lower ability to recall or recognize the charged expressions postexperimentally. The old subjects had a lower over-all level of arousal and lower over-all recall and recognition ability. Each group responded maximally to the charged phrases related to them and the older group responded more in absolute terms

to the charged old statements than the young. Hence, with an appropriate stimulus the apparent lowered central nervous system responsivity disappeared.

Arousing expressions appeared to facilitate the older subjects' memory by allowing them to form highly personalized associations. The expression causing the highest level of arousal in the young subjects was paradoxically associated with a high degree of forgetting which appeared to be analogous to various psychological defenses such as repression and denial.

The data suggested that the "cognitive" results were influenced by the old subjects' perception of the experiment as a test of their intellectual capabilities and the young subjects' perception of the experiment as an attempt to uncover information about their feelings, impulses, and values.

The results suggested that studies of perceptual and cognitive functions should consider (1) reception and conduction of specific sensory inputs, (2) the level of nonspecific central nervous system arousal, and (3) the psychological adaptive mechanisms activated by the psychodynamic implications of the experimental stimuli.

William A. Greene, Jr.

Role of a vicarious object in the adaptation to object loss: II. Vicissitudes in the role of the vicarious object

This report is a further consideration of the vicarious object mechanism of adjustment to object loss. The point of focus is on the person used as a vicarious object and his adaptation when a change in the relation ensues. Twenty-one of thirty-three children with leukemia had been a vicarious object for the mother largely because of emotional deprivations for the mother preceding and during the pregnancy with the child. These are referred to as the gestational circumstances. During later experiences involving personal losses and further disappointments, the mother gave up the child as a vicarious object and usually became clinically depressed. In this combination of prodromal circumstances the child's manifest leukemia developed. From these findings in children, along with the findings in adult patients I suggest that an involvement in a vicarious-object relation is one common precursor in persons in the population who become ill with leukemia and "psychosomatic" disease. Disruption of the vicarious-object relation for such persons determines when the somatic manifestations develop. The particular somatic manifestations are determined mainly by biological rather than psychological characteristics of the individual.

Harold Persky, James Maroc, Everett Conrad and Arie den Breeijen

Blood corticotropin and adrenal weight-maintenance factor levels of anxious patients and normal subjects

A group of anxious-hypercorticoid patients were shown to have a mean plasma level of adrenal weight-maintenance factor (a relatively new corticotropic substance) more than twice that of a group of normal, eucorticoid subjects. The mean blood level of ascorbic acid depleting factor (the conventional corticotropin) was also higher in the anxious group, but not significantly so. By means of a single classification analysis of variance, the levels of both of these hormones were shown to be significantly correlated with the clinical anxiety rating. It is presently unclear whether these two substances occur simultaneously in the blood of the same subject. A critical anxiety region exists below which neither substance is present in the subject's blood.

John M. Grant

Studies on celiac disease: I. The interrelationship between gliadin, psychological factors, and symptom formation

It is hypothesized that at least three conditions are necessary before symptoms of celiac disease can become manifest in an individual. These conditions are (1) the genetic factor, (2) gliadin in the diet, and (3) a decompensated psychological state of "giving up."

This hypothesis was examined by studying retrospectively and longitudinally a group of 8 adult celiac patients and their families. Family members were all screened for latent or manifest disease. Patients were placed on a gliadin-free diet and seen every 5 weeks for 2 to 3 years in a one-hour, minimally directive, tape-recorded interview. Particular attention was paid to symptoms, their settings, and dietary breaks.

Four of the six families examined had members besides the patient with latent or manifest disease. All patients improved on a gliadin-free diet, but 2 continued to have subclinical steatorrhea, suggesting that irreversible bowel

changes had occurred. Of 30 episodes of lower gastrointestinal symptoms occurring during the longitudinal study, 28 were preceded by gliadin and "giving up," or "giving up" alone; none of them was preceded by gliadin alone. When both conditions were present these episodes involved steatorrheal stools. When "giving up" alone was present, these episodes were clinically similar to irritable-colon syndrome or other psychophysiological diarrheas, not being steatorrheal. It was felt that these findings were consistent with the hypothesis.

John W. Mason, Joseph V. Brady, Edwin Polish, Joan S. Bauer, James Robinson, and Elizabeth Dodson

Concurrent measurement of 17-hydroxycorticosteroid and pepsinogen levels during prolonged emotional stress in the monkey

Plasma and urinary 17-hydroxycorticosteroid (17-OH-CS) and pepsinogen levels have been measured in monkeys during conditioned avoidance sessions, either sustained for periods up to 72 hours in duration or arranged in chronic programs extending over a period of several weeks. Substantial mean plasma 17-OH-CS elevations were observed during the first two hours of avoidance, then after a brief decline remained elevated during the major part of the 72-hour avoidance session. Plasma pepsinogen levels showed a brief, slight initial rise, but during the remainder of the 72-hour period levels were lower than normal.

The recovery period following 72-hour avoidance sessions was characterized by a remarkable delayed, proloned, twofold elevation of plasma pepsinogen levels occurring from the second through the fourth day of recovery. During this same period plasma 17-OH-CS levels were stabilized at the pre-experimental baseline.

In studies of monkeys on chronic avoidance programs involving continuously alternating avoidance and rest periods for many weeks, urinary 17-OH-CS response patterns varied in both degree and direction, ranging from a tenfold increase to a 50 per cent drop. Monkeys with the highest 17-OH-CS responses showed the lower pepsinogen responses, while the monkeys with the highest pepsinogen responses showed suppression of 17-OH-CS levels.

Robert Ader, C. Christian Beals, and Ronald Tatum

Blood pepsinogen and gastric erosions in the rat

A series of studies investigated the relation between blood pepsinogen and gastric erosions in the rat. Initial observations indicated that 20 hours of immobilization yielded a higher incidence of gastric erosions in Wistar than in Sprague-Dawley or Long-Evans animals. There were no differences in the behavior of immobilized animals with and without gastric erosions.

In subsequent studies half of each strain was immobilized; half served as controls. The incidence of gastric erosions and plasma pepsinogen levels were recorded. No control animal showed gastric erosions. Seven of 36 male and 32 of 42 female experimental animals had from 1 to 18 erosions in the body of the stomach. Whereas there were no strain differences among males, Wistar females had more erosions per animal than Sprague-Dawley females. Results regarding strain differences in pepsinogen levels in relation to susceptibility remained equivocal.

The pepsinogen levels of experimental animals with gastric erosions was higher than that of nonerosion animals for both males and females. The correlation between pepsinogen level and *number* of erosions per animal was not significant.

Since no erosions were found in control animals with high pepsinogen levels, it was concluded that a high pepsinogen level per se is not indicative of the presence of gastric erosions. That the pepsinogen concentration in the blood plasma of rats with gastric erosions is greater than that in experimental animals without gastric erosions is consistent with the findings on humans, and suggests that there is at least this one common feature involved in the development of gastric erosions in the rat and duodenal ulcer in man.

Eugene Meyer, Wayne Jacobson, Milton T. Edgerton, and Arthur Canter

Motivational patterns in patients seeking elective plastic surgery: I. Women who seek rhinoplasty

Since December, 1957, all patients presenting themselves for elective plastic surgery at the Johns Hopkins Hospital have been referred for psychiatric and psychologic study, after initial interview, by the Chief of the Department of Plastic Surgery (Dr. Milton T. Edgerton). The present report concerns the motivational patterns in a group of 30 women patients seeking elective rhinoplasty.

Preoperative tape-recorded psychiatric inter-

views and a battery of self-administered psychological tests constituted the method of study. Particular attention was paid to the patient's postoperative experiences. Follow-up studies are being made at two weeks, two months, six months, and one year. The 30 women patients ranged in age from 14 to 43 years. In all patients, regardless of age, preoccupation with the nose, as too large, ugly, or inappropriate to the rest of the face, dates from the period of adolescence. Factors contributing to the motivations for seeking rhinoplasty vary with the age and life situation of the patient. They may include (a) conscious wishes for beauty and attractiveness and the wish to avoid being stereotyped as "alien;" (b) a preconscious sense of linkage between a felt deformity of facial body image (the nose) and undesirable traits of personality function; (c) unconscious and intensely conflicted parental identifications which are particularly restrictive in the patient's ease of expression of feminine and sexual attractiveness; (d) in the older patients, there frequently is active current interpersonal stress which threatens the patient with depressive affect.

About one-third of the patients experienced a noticeable degree of postoperative emotional disturbance. These disturbances are generally brief, but underline the fact that major psychologic defenses have been brought into question by the operation.

The period of adolescence is regarded as crucial in confirming defensive use of the feelings of deformity of the nose in the attempted mastery of psychosocial conflicts.

Bernard C. Meyer, Richard S. Blacher, and Fred Brown

Psychiatric and psychologic aspects of mitral surgery

Both because of the real, vital importance of the heart as well as its symbolic importance in mental life, it might be expected that cardiac surgery would present distinctive features compared with other operative procedures. Such an expectation was borne out by this study.

Twenty-nine patients undergoing mitral surgery were studied psychiatrically and psychologically, using the House-Tree-Person Drawing Test both before and after operation. The drawings reflected reactions to the operative procedure itself as well as long-standing psychological conflicts and defenses. Following successful surgery, features of the preoperative drawings, interpreted as evidence of psychological regression, were replaced by graphic representation of ideas of rebirth, enhanced masculinity, etc.

Psychiatric interviews led to a grouping of patients in three separate but often overlapping categories, depending upon the outstanding psychologic conflicts in which the damaged heart was incorporated: Group 1—identifications with dead objects, especially siblings; Group 2—active-passive sexual identifications; Group 3—separation from important objects.

While somewhat arbitrary, such a classification helped to clarify the psychological significance in the patient's life both of the presence of disease of the heart and of his reaction to its repair. Not surprisingly, the psychological conflicts reactivated by the prospect of repair often referred to memories or events associated with birth and death. This study not only confirmed the observation that emotional forces may play an important role in the functional efficiency of the damaged heart, but that they are also instrumental in causing the often-noted discrepancy between the anatomical and functional consequences of valvular repair. Because of the resemblance, moreover, between true and pseudocardiogenic symptoms, extra caution is demanded in evaluating cardiorespiratory symptoms in subjects afflicted with valvular disease. Anxiety attacks experienced in the supine position, for example, may be mistaken for orthopnea in patients presenting classical murmurs of mitral stenosis.

Special attention is drawn to a postoperative condition characterized by frozen immobility, apathy, and harrowing repetitive dreams and memories arising from the operative experience. Designated by the authors as the "catastrophe reaction," the condition appears to be due in part, at least, to the use of a motor paralysant, anectine, during the operation which is conducted under minimal anesthesia, thereby conferring upon the operation the quality of a severe psychic trauma.

Peter H. Knapp in collaboration with S. Joseph Nemetz

Acute bronchial asthma: Antecedent and concomitant phenomena in 386 attacks and discussion of psychodynamic implications

Three hundred eighty-six episodes of acute asthmatic exacerbation were reviewed that oc-

curred in nine patients of a larger series studied most carefully by physiologic and psychologic methods. In three instances studies were done by psychoanalysis with periods of verbatim tape recording. The study focused on certain objectifiable aspects of antecedent circumstances and concomitant phenomena accompanying asthma.

Psychological antecedents (that is, events occurring within 48 hours preceding an attack) showed a wide variety, reducible to no single or simple class of event. Certain groupings, however, appeared meaningful; these were: (a) loss of a person; (b) loss of a concrete substance; (c) provocation of anger; (d) threat to integrity; (e) closeness to an important person; (f) respiratory or alimentary intake of ambivalently regarded substances; (g) stimulus to sadomascochistic fantasies; (h) stimulus to guilt. Asthmatic episodes clearly occurred in a subjective setting not only of longing and loss but also of excitement and reunion. Overt emotional expression appropriate to these apparent environmental events varied widely and often was so strikingly absent as to suggest prominent use of neurotic denial.

Psychologically concomitant feelings and fantasies tended to focus on the bodily process, sometimes understandably, but sometimes also suggesting denial of other concerns. However, there was always abundant manifestation of strong emotion. Two phases could be discerned. The latter of these was by far the most prominent, characteristic, and persistent. In this, the emotional picture was depressive, dominated by hopelessness and retardation, covert demands, and fantasies suggesting a struggle over retention and elimination, usually of poisonous substances. In addition to this phase, it was often possible to observe a prodromal phase immediately preceding and ushering in an attack. This was transitory, marked by restlessness, sometimes elation, sometimes panic, and fantasies of taking substances into the body, as well as by excited impulses.

An attempt was made to elucidate the necessary and sufficient conditions whereby symbolic psychological events, as well as noxious biological stimuli, can arouse in an individual with a sensitized respiratory pathway, the massive intake-expulsion response which seems characteristic of acute asthma.

Preliminary testing of a schematic model by short-term predictions as to the course of asthma in a patient in psychoanalysis was reported. It was possible to predict in a statistically significant way fluctuations in the day-to-day severity of asthma as measured by an internist over a 41-day period.

Albert J. Stunkard

Obesity and the denial of hunger

Current clinical conceptions of hunger are based upon reports that the experience of hunger occurs predominantly during periods of contraction of the empty stomach. We were prompted to a reinvestigation of this subject by the observation that obese persons often maintain that they are not eating because of hunger and that, indeed, they may rarely experience feelings of hunger. Seventeen obese and 18 nonobese women were studied for a standard four-hour test during which gastric motility was recorded and the subjects were asked every 15 minutes as to the presence of "hunger," abdominal "emptiness," and "desire to eat."

The nonobese women, in accord with traditional views, usually reported hunger in the presence of gastric contractions and no hunger in the absence of such contractions. The obese women, on the other hand, usually failed to report hunger during the presence of gastric contractions. This denial of hunger extended to a denial of sensations of abdominal emptiness and of desire to eat, fundamental characteristics of the hunger experience among nonobese women. That this phenomenon was a specific denial of hunger and not a nonspecific inability to discriminate between hunger and no hunger was suggested by the fact that the obese women showed no difference from the nonobese women in their ability to report no hunger in the absence of gastric contractions.

Obese subjects manifesting the "night-eating syndrome" showed a significantly higher incidence of denials of hunger than did obese persons not manifesting this syndrome.

Denial of hunger seems to occur in persons with a conflict over eating who are simultaneously subjected to strong social pressures in this regard. It may serve the function of excluding from awareness any stimuli which signal an approaching nutritional deficiency with its concomitant conflict over eating.

Book Reviews

Lectures on Epilepsy

A. M. Lorentz de Haas (Ed.)

New York, Elsevier Publishing Company, 1958, 172 pp., $4.75

This publication was printed originally as supplement No. 4 to the Journal Folia Psychiatrica Neurologica, et Neurochirurgica Neerlandica. The material comprises a symposium held in Holland on July 6, 1957.

The first contribution, by D. David and M. B. Dall of Paris, deals with the surgical treatment of "temporal lobe epilepsy." The authors advocate destruction, by the stereotatic route, of rhinocephalic structures.

The other three papers are concerned with psychic, mental, or personality disorders of epileptics. H. Vislie and G. F. Henricksen, Oslo, in 26 tables, gives a statistical study of 162 patients, correlating the mental status with the IQ's, the EEGs, and the evidence of brain lesions.

H. Landolt, Zurich, made serial EEGs before, during, and after psychotic episodes in persons with epilepsy or with schizophrenia. Using 149 patients, he distinguishes four different conditions. These are, postictal twilight states; petit mal status, psychotic episodes (epileptic mania) and episodes with an increase of electroencephalographic abnormality.

A. M. Lorentz de Haas and I. Magnus, Holland, studied 78 epileptics who had experienced some episodic mental illness. These formed 5 per cent of an institutional group, almost all of them adults. Cases are classified with respect to the type of epilepsy and the mental state.

This symposium provides the reader with observations of certain European authors on a complicated subject of much interest.

WILLIAM G. LENNOX

The Relationships Between Electroencephalographic and Psychological Data in Normal Adults

Dr. P. F. Werre

Universitaire Pers Leiden, 1957

Rather more than half of this thesis covers the literature of electroencephalography and studies concerned with its relevance to psychological processes. This is a conscientious survey in the best tradition of European academic dissertations. No attempt is made to suggest the achievement of conclusive findings or to exaggerate the significance of research in this field. In fact, the author condemns much of the work for its shortcomings in some technical aspect of E.E.G. recording. His purpose in conductting an experiment in the Neurological Clinic of the Academic Hospital in Leyden (Netherlands) was to correct the errors of his predecessors by using an eight channel instrument and by deriving a composite index from his records. His careful design of the electrophysiological procedure, however, could not counteract the faults of a completely haphazard approach to the psychological problems of the study. The author evidently had no clear idea of what kind of psychological construct was most likely to correspond to his electrophysiological indices, process or personality type, nor how to define these in behavioral terms and how to for-

mulate testable hypotheses. Apart from some very simple tasks which presumably represent cognitive processes, he seems to have relied mainly on such complex and poorly defined personality traits as "reaction to frustration," "reaction to feelings of insecurity in interpersonal relationships," "life dimensions," etc. Moreover, these global attributes were not evaluated in situations which might meaningfully reveal their presence, magnitude, and composition, but were presumably inferred from the protocols of projective techniques. It is hardly surprising that having examined the results of the experiment, "it is tentatively concluded that there are no unique associations between any single electroencephalographic variable and any specific psychological parameter." Faced with this disappointing outcome of his study, the author seems to have become aware of some of the complexities of the psychological method, but not sufficiently so to reconsider the problem he had set out to study and to re-design his research. Instead, the conclusions lean heavily on the findings of earlier workers whose inadequate accomplishments this study was to have superseded.

GEORGE A. TALLAND

The Anatomy of the Nervous System (Ed. 10)

S. W. Ranson, M.D., Ph.D. (Revised by S. L. Clark, M.D., Ph.D.)

Philadelphia, W. B. Saunders Co., 1959, 622 pp. 434 illus., $9.50

This is a great book. In the earlier editions, written by Ranson alone, it became a standard text for medical schools and always gave a useful clinical coordination of the anatomical facts. Now under the influence of Dr. Clark, there is even more emphasis on function, development and applied anatomy. In the preface to the tenth edition Clark says "Form and function in biological systems, where survival is often the test of fitness, are inseparable attributes to be considered together for better understanding. In the study of the nervous system, when cells once formed survive as functional entities, sometimes for a century, the significance of structural details is obviously great. Although the text is primarily an anatomical one it has the same aim as that of the student using it, that is, to examine not only how the nervous system is made up but as far as possible how it works." This new edition is enthusiastically recommended to all who are interested in how the brain works.

S. C.

Personality Change and Development: as Measured by the Projective Techniques

Molly Harrower, Ph.D.

New York, Grune & Stratton, 1958, 383 pp., $10.00

Dr. Harrower's contributions to the area of projective psychodiagnostics are well known. In this publication special attempt is made to evaluate changes in the examinee's test picture during an interval varying from hours to years. Relations to previous studies relevant for the problem are critically dealt with, among them work of Schafer; Mintz, Schmeidler and Bristol; Fromm and Elonen; Haimowitz and Haimowitz; Henry and Rotter; Piotrowski and Schreiber. The author's case material is classified into a dozen groupings, such as time intervals between series, and long term therapies of various types. "Core" procedures for the present are Rorschach, Szondi, and Figure Drawings. Other procedures are used, such as items from TAT and Sentence Completion, but are in the background for this presentation. Wechsler verbal responses are included as reference points.

To gain efficiency in presentation the protocols are necessarily stylized, and the user will need to study with special care the third chapter which briefs him on this style. The data have minimal processing, that the user may have wide latitude for his own understanding of them. (The throat specialist anecdote on p. 19 seems to represent *Verlegung von unten nach oben;* the anal region served in the given capacity at least as early as 1917.)

It is not the intent of the author to lay stress on syntheses or generalizations at this time; there is contemplated a further and more extensive volume which will deal with such matters. The present work will have its greatest concern for those clinicians who, having satisfied themselves as to validity of the various interpretive procedures, wish to sharpen their thinking about the meanings of projective responses they encounter in their daily practice. It is also possible, despite the author's reservations, to see the work functioning as a test for advanced teaching.

F. L. WELLS